H2 Berlin

Hydrogen in Berlin – Seizing First-Class Opportunities!

Setting the course for tomorrow

Dear Readers,

The energy transition is one of the greatest challenges – and at the same time one of the greatest opportunities – of our time. As H2 Berlin e. V., we have made it our mission to advance the hydrogen economy in Berlin and thus make a decisive contribution to sustainable energy supply.

Our vision is clear: wherever electricity reaches its limits, we aim to replace fossil fuels with clean, efficient, and sustainable hydrogen solutions. We are not doing this alone, but together with strong partner companies who share our commitment and conviction.

Together, we identify projects with the potential to fundamentally transform Berlin's energy landscape. Already, 30 companies in Berlin are actively involved in realizing a sustainable and resilient hydrogen future. This brochure provides an overview of where we currently stand.

At major power plant sites, the airport, in rail connections, vehicle fleets, and through the provision of necessary infrastructure, we are preparing applications in energy supply, transport, and industry through selected lighthouse projects at identified hydrogen hubs.

We warmly invite you to become part of this movement. If you have recognized the potential of hydrogen for your company and for Berlin—or would like to learn more—don't hesitate to contact us.

We have the power to shape a more peaceful, healthier, and livable future. Let's take the initiative together.

Sincerely,

Dr. Jörg Buisset
Chairman, H2 Berlin e.V.

Status: 07/2025

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Making the energy transition socially acceptable

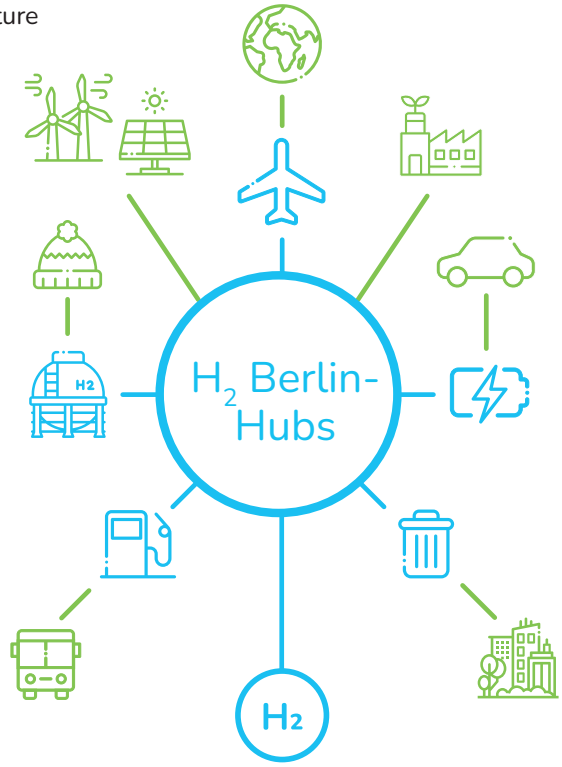
Berlin: A Model City for Hydrogen Technology

Berlin's hydrogen economy is on a promising growth path. Our projects – already implemented or in development – form a strong foundation for the city's future decarbonization.

From BER Airport to circular economy, energy supply, transport, data center development, and innovative industrial projects – Berlin has the potential to become a leader in hydrogen technology and a model for sustainable urban development.

Households, commerce, trade, and services account for two-thirds of Berlin's CO_2 emissions. As a capital city with 3.8 million residents, Berlin faces unique challenges in decarbonization. Renewable energy must be available anytime and anywhere to meet growing demand and achieve climate goals.

By using hydrogen in the well-developed gas network and integrating it into the city's district heating systems, Berlin households could be supplied with renewable energy – without costly renovations, relocations, or rent increases. This solution would allow efficient use of existing infrastructure while enabling the transition to sustainable energy.



H2 corridor to supply Berlin

Nordic-Baltic Hydrogen Corridor

Part of the European Hydrogen Future

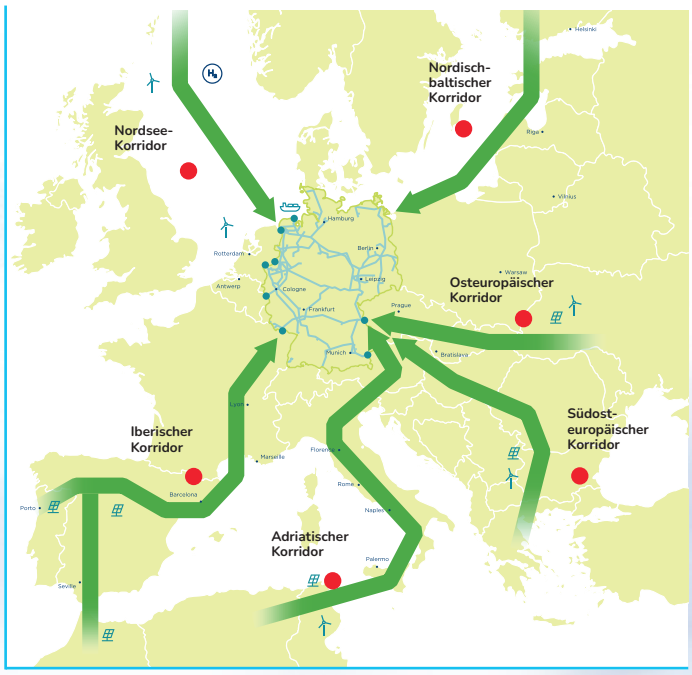
The **Nordic-Baltic Hydrogen Corridor (NBHC)** is part of the six hydrogen import corridors planned by the EU, which aim to replace the import of fossil fuels. Even in a climate-neutral future, Berlin will need to import a large portion of its energy – both as green electricity and increasingly as sustainable hydrogen. Only green hydrogen can ensure a long-term secure, economical, and socially equitable energy supply.

Connecting Northeastern Europe to Berlin

The NBHC, in which our member **ONTRAS** is actively involved, connects the Nordic and Baltic states with consumption centers in Germany. The goal is to establish a robust cross-border infrastructure for green hydrogen that integrates existing pipelines and opens up new corridors. Through joint strategies involving industry, research, and politics, an integrated hydrogen market is being created.

Lubmin as a Hydrogen Hub

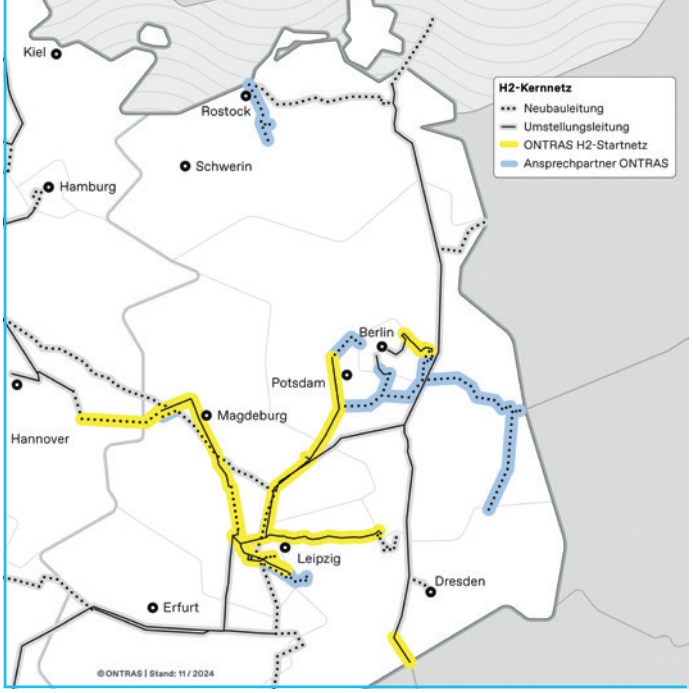
A key component of the corridor is being developed in **Lubmin**, the former landing point of the Nord Stream pipelines. By 2032, one of Germany's largest electrolysis parks – with more than 1 GW of capacity – is being built there, aiming to produce over **100,000 tons of green hydrogen annually**. These volumes will be transported via the **nationwide hydrogen core network**, which was adopted by german governmentat the end of 2024.



Source: https://oge.net/de/wasserstoff/h2-importkorridore

Overview of the import corridors through which hydrogen is transported to Germany and fed into the H_2 core network

Hydrogen will begin reaching the outskirts of Berlin as early as **2027**, ensuring a long-term climate-neutral energy supply.



ONTRAS H2 Start Network brings hydrogen to Berlin

Together for Green Hydrogen: Berlin Joins the Hydrogen Core Network

In April 2025, the time had come: with the commissioning of a 25-kilometer pipeline, ONTRAS began building the Hydrogen Start Network in eastern and central Germany – an essential segment of the nationwide hydrogen core network. This network will connect producers, storage facilities, and consumers, ensuring the supply of entire industrial regions – including Berlin.

Efficient Use of Existing Infrastructure

More than 80 percent of the approximately 600 kilometers of pipelines will be realized by converting existing natural gas pipelines – quickly, cost-effectively, and with a focus on climate goals. One of the first applications is the transport of green hydrogen from the Bad Lauchstädt Energy Park to the TotalEnergies refinery in Leuna.

Berlin is being connected – through strong partners.

The ONTRAS Hydrogen Start Network links key industrial regions such as the Central German Chemical Triangle, Magdeburg, and Salzgitter with the greater Berlin area – quickly and efficiently via existing pipelines. New storage facilities, import sources, and the Nordic-Baltic Hydrogen Corridor enhance supply security.

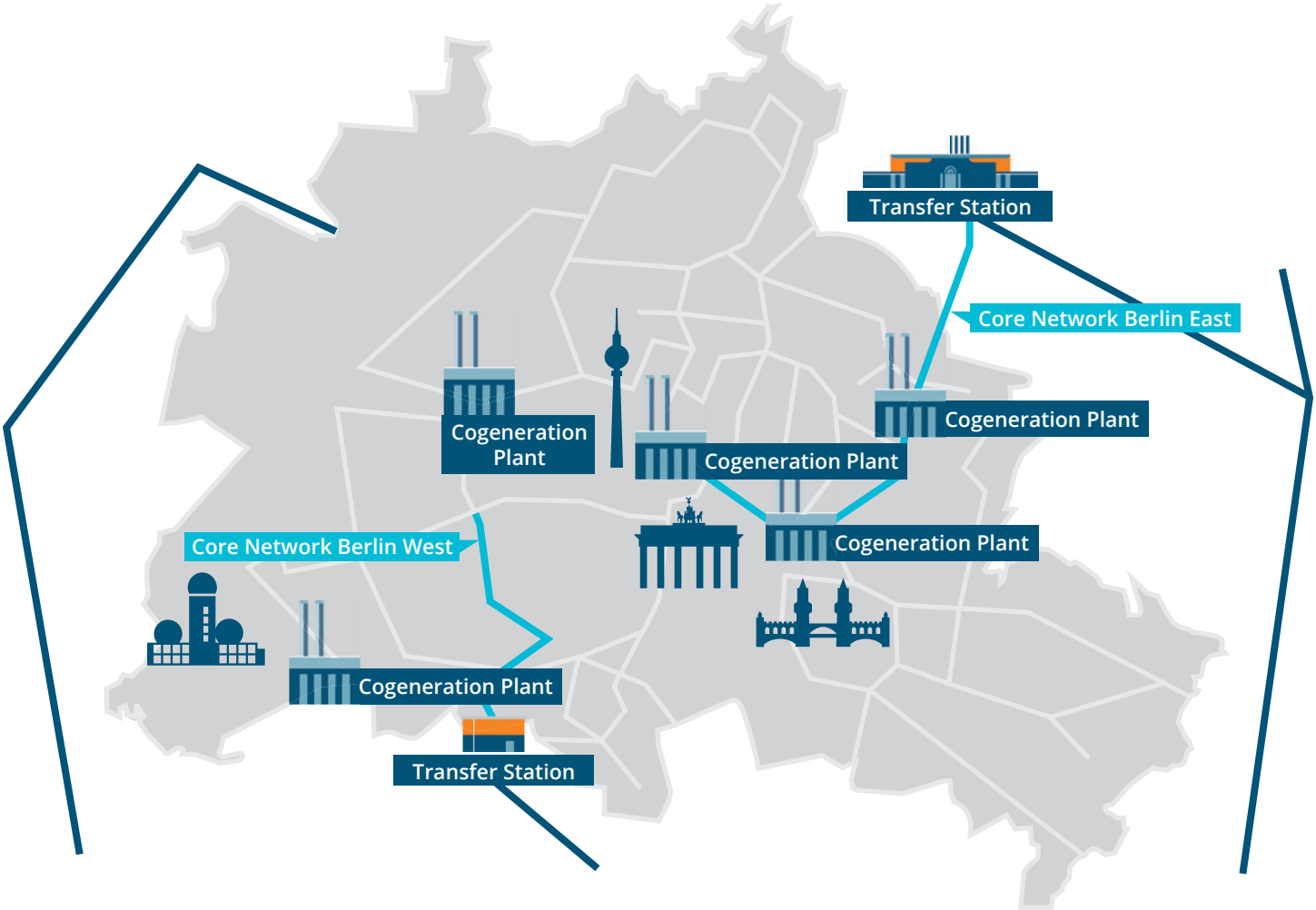
In the capital region, NBB and GASAG are driving the transformation: NBB is preparing the connection to the hydrogen core network. GASAG is developing climate-neutral energy solutions for urban districts and industry. This is how a reliable hydrogen infrastructure for Berlin is emerging – as part of the national and European energy transition.

By inclusion of two NBB transport pipelines in the hydrogen core network, hydrogen will also be available in Berlin.

NETZGESELLSCHAFT
BERLIN-BRANDENBURG
Ein Unternehmen der GASAG-Gruppe

PAVING THE WAY FOR HYDROGEN

Core Network (finalization until 2032)
Connection of grid connections > 500 MW



Nationwide H_2 core network (reallocation and new construction)
Berlin H_2 core network of the NBB (reallocation)
Gas transport pipelines of the NBB (possible expansion of the Berlin H_2 network)

Status/Decision October 22, 2024

Berlin: Europe's Ideal Capital for Hydrogen Solutions

Why? Because Berlin will be one of the first metropolitan areas in Europe to be directly connected to the hydrogen long-distance gas infrastructure.

Germany's nationwide hydrogen core network, spanning 9,040 kilometers, is planned to be implemented by 2032. With ONTRAS's long-distance pipelines reaching the outskirts of Berlin and two transport pipelines totaling 55 kilometers operated by NBB within the city, major urban combined heat and power plants can be supplied via a dedicated hydrogen pipeline.

And because Berlin's unique gas infrastructure facilitates the transition to hydrogen

Through close collaboration with partners from industry, research, and politics, the start network of Netzgesellschaft Berlin-Brandenburg (NBB) is intended to drive decarbonization and the expansion of renewable energy in Berlin and Brandenburg. This start network is an NBB initiative focused on building and promoting a future-proof energy infrastructure. Berlin's unique conditions and its highly meshed gas infrastructure allow for a parallel operation with natural gas during the hydrogen transition – a prerequisite for a realistic and economically viable conversion.

The core of the infrastructure: underground hydrogen storage

EWE AG uses underground salt caverns for the safe and efficient storage of hydrogen. This technology enables the storage of large volumes of hydrogen to secure energy demand. By using salt caverns, cost effectiveness and long-term storage is ensured – a crucial factor for the energy transition and the use of renewable energy. Hydrogen produced primarily in summer when electricity prices are low helps ensure the supply during periods of high electricity prices and heat demand – mainly in winter. With EWE's salt cavern in Rüdersdorf, Berlin has the opportunity to store wind and solar power for winter in the form of hydrogen.

The role of Berlin's district heating network

BEW Berliner Energie und Wärme operates the largest district heating network in Western Europe. Over one-third of the city is supplied with climate- and environmentally friendly heat via district heating networks, making it a central pillar of the capital's energy supply. Today, highly efficient natural gas-fired combined heat and power (CHP) plants provide the majority of the city's heat. Efficiency improvements have halved CO_2 emissions from the city's district heating systems in recent years. This transformation will continue in the coming years until full decarbonization is achieved.

Large-scale heat pumps that utilize waste heat from commercial and industrial processes, environmental heat such as geothermal energy, and "Power-to-Heat" systems that convert surplus renewable electricity into heat will largely replace natural gas-fired CHP. Nevertheless, a metropolis like Berlin will continue to rely on power and heat generation from power plants – especially during "dark doldrums" when there is little wind or solar energy. During these times, previously stored CO_2-free hydrogen will replace natural gas, and CHP plants will ensure supply.

This is how the energy transition in the city is actively advanced – while maintaining comfort.

Future Power Plants for a CO_2-Free Energy Supply in Berlin – Making the Most of Location Advantages

A small amount of hydrogen will also be produced in Berlin. The current power plant sites are ideal for this, as they already offer excellent energy infrastructure.

Energy Triangle Ruhleben – Sector Coupling and Decarbonization Hub

The Energy Triangle Ruhleben is Berlin's largest energy site and one of the most significant initiatives for transforming the city's energy supply. Several partners, including Berliner Energie und Wärme (BEW, formerly Vattenfall Wärme), are working here to develop a CO_2-neutral energy supply for households and industry.

Around 1 million tons of waste are incinerated at the site – more than half of it of biogenic origin. Today, the heat is sustainably fed into Berlin's district heating network. Waste heat from waste incineration and wastewater is already being used to cover part of the city's heating demand.

In the future, raw materials could also recover from waste in a circular economy. Our partner, Neue Energien Premnitz, has a solution for this and demonstrates how sustainable hydrogen can be separated as an energy carrier and carbon as a raw material. When processing biogenic material, the method creates a climate-friendly CO_2 sink.

Hydrogen production via electrolysis using process water from the Reuter power plant can also be carried out cost-effectively at this site. The electrolyzer's waste heat can be used for district heating via existing heat pumps. Hydrogen is already used here for turbine cooling and is not a new medium. The high-voltage connection at the power plant site can be used for effective grid-supporting hydrogen production.

The BWB wastewater treatment plant at the site uses the oxygen byproduct from electrolysis to generate ozone, which is required for the treatment process. Our simulation model for supply, production, and offtake enables particularly economical hydrogen production at this location. Sector coupling plays a crucial role here, where hydrogen as an energy carrier connects the energy sector with the transport, industrial, and building sectors, contributing to system stability and economic efficiency.

Nearby potential consumers, such as the BMW plant in close proximity or the planned H_2 filling stations by H2 Mobility, reduce transport costs. The planned data center in the connected Gartenfeld district development area also offers advantages.

Since fluctuating renewable energy sources do not always meet demand, hydrogen as an energy storage medium enables continuous power supply around the clock. Utilizing the data center's waste heat in the neighbourhood or district heating network ensures efficient and sustainable operation.

The Energy Triangle Ruhleben is a cornerstone in creating a sustainable energy supply in Berlin and could serve as a model for other metropolitan areas.

Mobility – pure battery operation has its limits

Hydrogen Refueling Stations: H2 MOBILITY and TEAL

In Berlin, hydrogen infrastructure plays a key role in sustainable mobility. H2 MOBILITY, a hydrogen refueling station operator with over 50 stations across Germany (as of April 2025), operates four hydrogen stations within the city, ensuring comprehensive coverage for hydrogen-powered vehicles. In Neukölln, the company runs a station equipped with 350-bar technology for refueling heavy-duty vehicles such as trucks and buses. Complementing this, TEAL (a joint venture between TotalEnergies and Air Liquide) supports the development of modern refueling technologies and ensures efficient and safe hydrogen supply. One of the major projects is the expansion of the hydrogen station at BER Airport.

Hydrogen Production at BER Airport

BER Airport borders the Berlin-Blankenfelde Stadtgut, where the livestock farming of the future is being developed. Barns are designed to capture climate-damaging methane. Combined with biomethane derived from plant waste, sustainable hydrogen will be produced using the plasmalysis process developed by startup partner Graforce. This process also generates waste heat, which can be used to provide green heating for airport buildings. Additionally, pure carbon is produced, which already has industrial buyers. This creates another climate-friendly CO_2 sink. The provision of renewable energy is also particularly advantageous: agri-PV systems and wind turbines on Stadtgut land will be used for hydrogen production. Due to the proximity to the airport, the electricity generated is exempt from grid fees. The hydrogen produced is thus competitive even without subsidies.

BSR – Berlin's Waste Management Authority

Berliner Stadtreinigungsbetriebe (BSR) is committed to an environmentally friendly fleet to make urban transport more sustainable. By integrating battery-electric and hydrogen-powered vehicles into its fleet, BSR reduces CO_2 emissions and actively contributes to improving air quality in Berlin. As Europe's largest municipal waste management company, BSR focuses on climate neutrality and high performance in its operations. Innovative approaches are being pursued in partnership with manufacturers and users to further develop the fleet.

Toyota Taxi – H2 Moves Berlin

Thanks to the growing hydrogen infrastructure, including stations from H2 MOBILITY and TEAL, you can now travel emission-free through Berlin in a Toyota FCEV Mirai with H2 Moves. This pushes the transport sector further toward a greener future – without compromising on range, comfort, or refueling time. The pilot project H2 Moves Berlin was launched two years ago by Toyota Deutschland GmbH, Anglo American, and the SafeDriver Group with ENNOO. The initiative aims to accelerate the breakthrough of sustainable hydrogen mobility in Germany. Germany's largest hydrogen fleet can be booked for your daily rides in Berlin via the UBER app.

Heidekrautbahn – Hydrogen Train for Berlin Starting 2026

As part of the Heidekrautbahn project, ENERTRAG is planning the production and supply of green hydrogen for the RB 27 line, significantly contributing to sustainable mobility and the energy transition in Berlin and Brandenburg. The Heidekrautbahn connects Berlin with its surrounding region and relies on efficient and environmentally friendly technologies, especially modern, emission-free propulsion systems. ENERTRAG is developing innovative solutions to make rail transport more sustainable using green hydrogen and renewable energy. The project not only promotes the development of eco-friendly transport infrastructure but also significantly reduces CO_2 emissions, making the Heidekrautbahn a key component of a greener future in regional public transport.

Hydrogen on Berlin's Waterways

With the Elektra, a joint project by TU Berlin and BEHALA, Berlin has launched its first hydrogen-powered push boat, operating between Berlin's Westhafen and Hamburg. The city's aging fireboats are also set to be replaced by hydrogen-powered vessels starting in 2027. A purely electric operation would not meet the required range and operational conditions of these ships.

Decarbonization of industry with sustainable hydrogen solutions

Pioneer BMW

Our partner BMW is not only a pioneer in electromobility. Particularly noteworthy is the use of hydrogen for industrial processes and the decarbonization of logistics as part of a comprehensive corporate strategy. In the first BMW plants, hydrogen is already being used in paint shops, where high process heat is required. Hydrogen is intended to replace natural gas, significantly reducing CO_2 emissions. This makes BMW a trailblazer in the automotive industry and a model for other high-temperature heating processes in various industrial sectors.

Hydrogen is also being used in logistics. Forklifts and tugger trains already run on hydrogen, and by the end of 2025, the first hydrogen-powered trucks are expected to be deployed for long-distance transport. Battery-powered logistics processes have proven to be less effective in three-shift operations. BMW's hydrogen project is also intended to serve as a model for other car manufacturers aiming to make their production processes economically climate neutral. The conversion of the BMW motorcycle plant in Berlin is linked to the development of the H2 hub at the Ruhleben Energy Triangle.

Pioneering Hydrogen Use in Wastewater Treatment

Berliner Wasserbetriebe (BWB) is an important partner of H2Berlin and is testing the integration of hydrogen technologies into its operations to further reduce CO_2 emissions and improve the energy efficiency of wastewater treatment plants. Hydrogen electrolysis using process water is planned as an interface to biological methanation (storing hydrogen in the form of methane) and ozonation (using the oxygen byproduct).

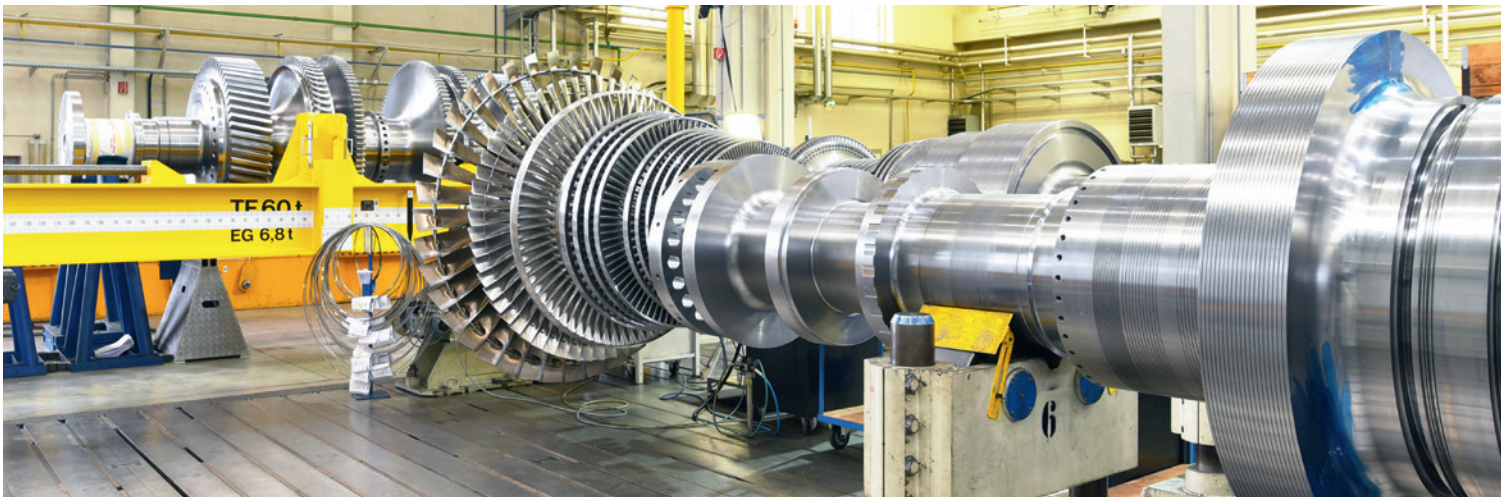
Decarbonizing Industry with Sustainable Hydrogen Solutions Waste Processing via Plasmalysis

Forward-thinking partners of H2 Berlin are planning to produce hydrogen from waste. In a first step, components from decommissioned wind turbines – such as fiberreinforced plastics – will be processed in Premnitz. The cost-effective plasmalysis process converts solid waste into a usable gas mixture at very high temperatures. Upon cooling, the components of this gas can be separated – including solid carbon, gaseous hydrogen, and other valuable raw materials that can be reused industrially.

Especially when processing biogenic waste, large quantities of hydrogen are produced. This green hydrogen not only serves as a sustainable energy source but also acts as a CO_2 sink by carbon. The recovered hydrogen replaces fossil fuels and can be used in industry, mobility, and energy supply. The project serves as a pilot for Berlin and demonstrates how circular economy, waste reduction, and climate-friendly energy production can be innovatively combined. Given the steadily growing volume of waste in Berlin, the technology developed by Neue Energien Premnitz offers a scalable solution: it efficiently processes waste while simultaneously generating hydrogen as a sustainable energy source.

Siemens Energy Relocates Headquarters to Berlin

Another key driver for scaling up the hydrogen economy in Berlin is the Siemens Energy headquarters on Huttenstraße. This is where the hydrogen electrolyzers of the future are being developed. The so-called Gigafactory is paving the way for mass production of hydrogen. Equally important



for Berlin's decarbonization is the development of hydrogen turbines at this site, which can help decarbonize the city's power plants and district heating network.

Hydrogen Hub East

This will be the first location in Berlin where hydrogen is distributed through gas pipelines. A central component of the hub is the CleanTech Business Park Marzahn – the last large area available for commercial development in Berlin. This future-oriented site and innovation hub is intended to attract companies developing sustainable technologies. At its core is a planned hydrogen power plant, which will play a key role in the transition to a CO_2-neutral economy. As a pilot project for the use of green hydrogen in urban infrastructure, it will set new standards for the hydrogen economy. Together with the project in Lubmin, this innovative initiative forms the foundation for future developments in hydrogen technologies.

Green hydrogen will be produced here via electrolysis using surplus electricity from wind and solar energy. A battery storage system will also be installed to buffer fluctuations in energy production and ensure continuous hydrogen generation. The hydrogen produced can be used in the CleanTech Park Marzahn and beyond – from supplying businesses and nearby neighborhoods to supporting mobility solutions.

Outlook

At the heart of our efforts is the people of Berlin. For a more livable and healthier future, next-generation power plants connected to hydrogen networks are being developed. Cyclical waste processing plants, wastewater treatment facilities, and agricultural supply operations in the city will contribute to the production of this sustainable energy carrier. Hydrogen will be used in industries such as paint drying or for the climate-neutral and efficient operation of data centers. Hydrogen refueling stations will supply fireboats, hydrogen trains, municipal fleet vehicles, and Uber cars for private mobility.

Together, the projects presented here by H2Berlin's partners form a solid foundation for a resource-efficient, economically viable, and socially responsible transition to a resilient future – with hydrogen as the key system component for sustainable energy security.

Did you know?

Your current fuel supplier is going the way of coachmen and lamplighters...

Scan the QR code or visit us at **www.premnitzhydrogenpark.com** and take a look into the future with us.

Fuel for the future, made possible by:

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