Lower Saxony State Chancellery

Lower Saxony
On track to becoming
Germany's Energy State No. 1

Niedersachsen. Klar.

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1. Lower Saxony – On track to becoming Germany's Energy State No. 1 – Foreword

Lower Saxony is well on its way to becoming Energy State No. 1 – leading in generation, storage, import, and utilization of renewable energies in all sectors.

The decarbonization of energy supply, industrial processes, and mobility is an enormous challenge for all countries and regions. To successfully manage this transformation, Lower Saxony is pursuing ambitious goals. The key lies in ensuring a secure, clean, and reliable energy supply from renewable sources.

Our geographical location in northern Germany offers many advantages. Currently, we meet 100 percent of our electricity demand with wind power, biomass, and solar installations on a balance sheet basis. Lower Saxony's strengths particularly lie in the field of wind energy – both onshore and offshore – as well as in the utilization of solar energy (photovoltaics). These energy forms are efficient, environmentally friendly, and reduce our dependence on fossil fuels. Wind and sun are our new raw materials.

An important element of Lower Saxony's transformation is the production, distribution, storage, and import of hydrogen. The more renewable energies are installed, the more frequently surplus electricity accrues during certain times, from which „green" hydrogen can be produced in an environmentally friendly manner – thus improving overall energy storage.

Hydrogen can be used in various ways: as a raw material or energy carrier in industry, as well as a fuel in mobility. Many companies, as well as academia and research in Lower Saxony, are actively involved in Lower Saxony in the development and introduction of hydrogen technologies. This leads to numerous innovations – made in Lower Saxony.

Lower Saxony aims to continue its determined and swift progress on the track to becoming Germany's Energy State No. 1. This is an important contribution to climate protection, energy security, industrial development, and our future prosperity.

Warm regards,

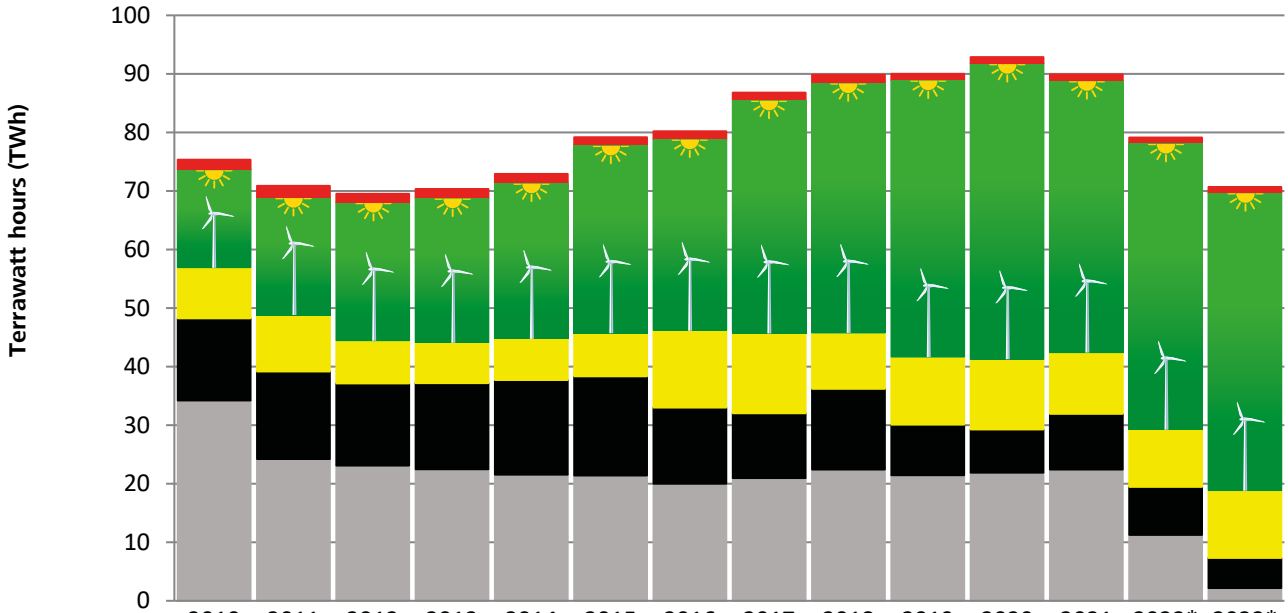
Stephan Weil
Prime Minister of the State of Lower Saxony

2. Lower Saxony – Germany's leading State in renewable energies

Above-average share of renewable energies:

In Lower Saxony, 100% of electricity consumption is covered by renewable energies on a balance sheet basis. This is almost twice as high as the federal average of around 50%. To make this figure tangible: Every fifth kilowatt-hour of green electricity produced in Germany in 2023 was ‚Made in Lower Saxony'.

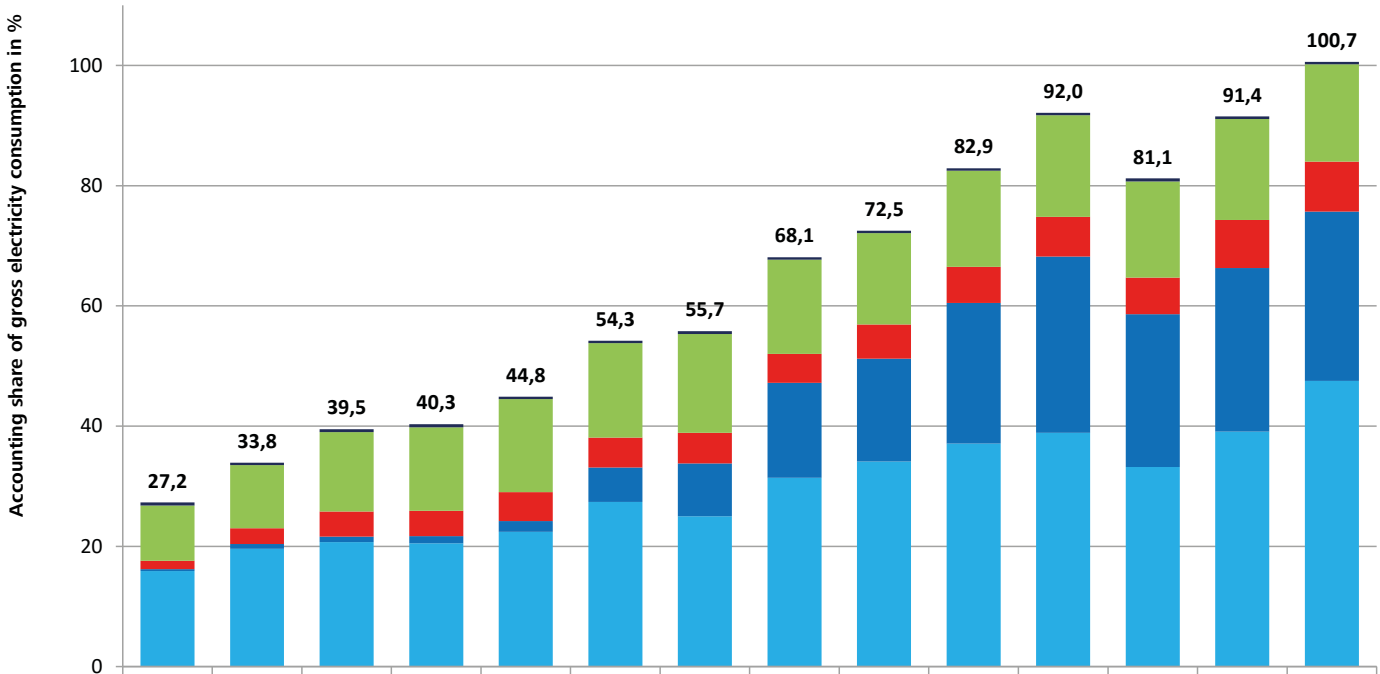
Share of energy sources in gross electricity generation since 2010:



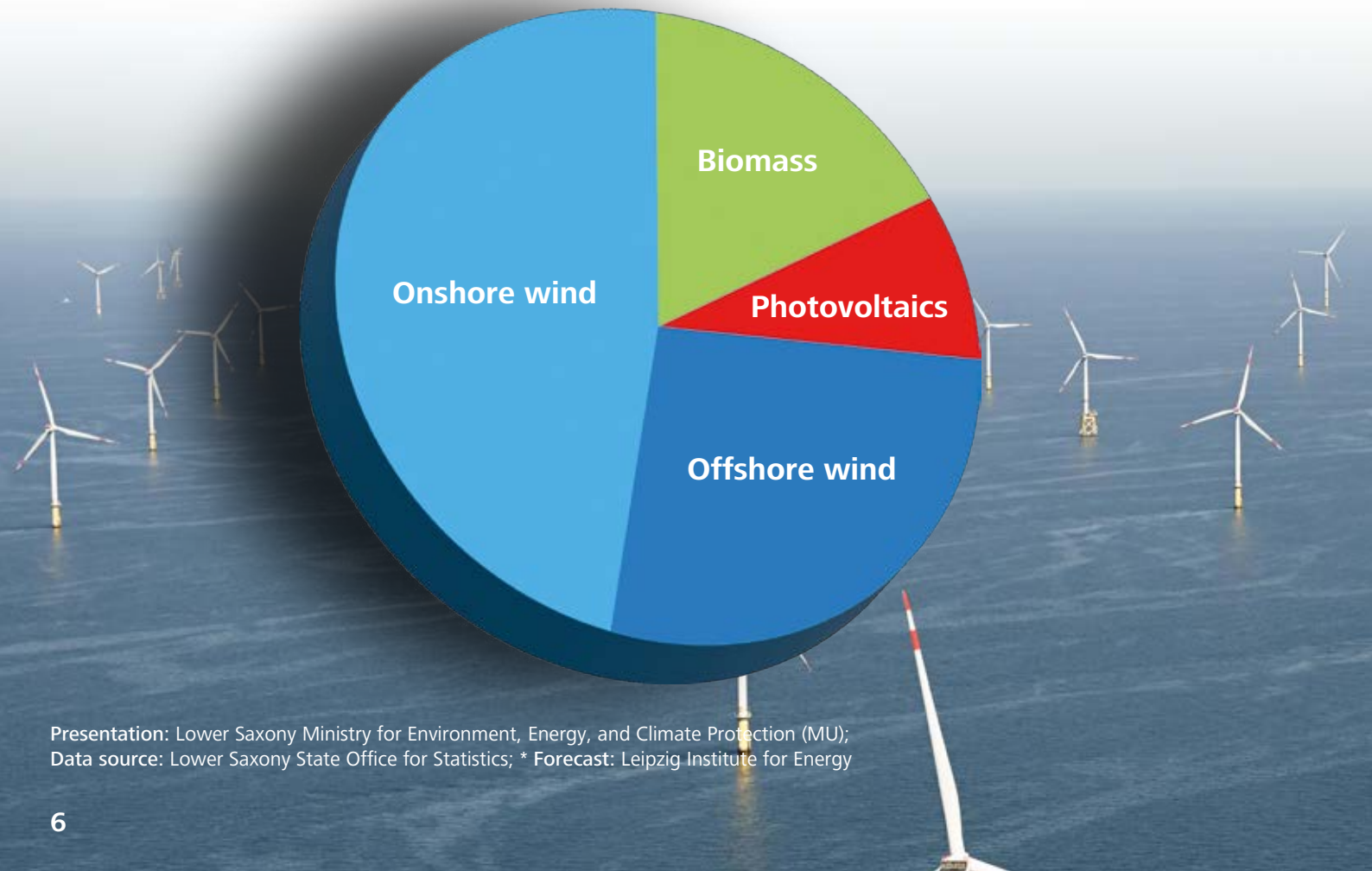
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022*	2023*
Miscellaneous	1,69	2,03	1,42	1,53	1,54	1,36	1,32	1,32	1,38	1,09	1,10	0,99	0,95	0,98
Renewable Energies	16,66	19,97	23,54	24,54	26,42	31,95	32,53	39,57	42,63	47,21	50,49	46,43	48,74	50,79
Mineral oil and products	0,14	0,09	0,09	0,09	0,17	0,14	0,21	0,24	0,11	0,07	0,09	0,10	0,27	0,18
Gases	8,59	9,58	7,32	6,97	7,03	7,36	13,08	13,61	9,51	11,52	11,91	10,44	9,71	11,39
Coal	14,04	14,99	14,02	14,69	16,17	16,97	13,02	11,04	13,77	8,65	7,40	9,49	8,17	5,14
Nuclear Energy	34,22	24,22	23,12	22,51	21,57	21,40	20,02	21,01	22,44	21,48	21,90	22,45	11,29	2,22

Presentation: Lower Saxony Ministry for Environment, Energy, and Climate Protection (MU);
Data source: Lower Saxony State Office for Statistics; * **Forecast:** Leipzig Institute for Energy

Renewable Energies: Development in Lower Saxony since 2010



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022*	2023*
Total	27,2	33,8	39,5	40,3	44,8	54,3	55,7	68,1	72,5	82,9	92,0	81,1	91,4	100,7
Hydropower	0,5	0,4	0,5	0,5	0,4	0,4	0,5	0,4	0,4	0,4	0,4	0,5	0,4	0,4
Geothermal	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Biomass	9,2	10,5	13,2	13,9	15,5	15,7	16,4	15,7	15,2	16,0	16,9	16,0	16,8	16,2
Photovoltaics	1,4	2,6	4,2	4,2	4,8	5,0	5,1	4,8	5,7	6,0	6,6	6,1	8,0	8,3
Offshore Wind	0,3	0,8	0,9	1,2	1,8	5,7	8,8	15,8	17,1	23,4	29,3	25,4	27,2	28,2
Onshore Wind	15,9	19,6	20,7	20,5	22,4	27,4	25,0	31,4	34,1	37,1	38,9	33,2	39,1	47,5



Presentation: Lower Saxony Ministry for Environment, Energy, and Climate Protection (MU);
Data source: Lower Saxony State Office for Statistics; * **Forecast**: Leipzig Institute for Energy

Wind energy as a centerpiece:

Lower Saxony produces more electricity from onshore wind energy than any other federal state in Germany, with an installed capacity of 12.54 gigawatts. This corresponds to the energy needed to theoretically supply about 7.7 million households. The expansion is continuing: in 2023 alone, turbines with a capacity of 638 megawatts were put into operation, enough to supply approximately another 391,000 households. The continuous rapid expansion of wind energy is the centerpiece for Lower Saxony to become climate-neutral by 2040.

Cumulative capacity and number of installations in the federal states of Germany

	Cumulative installed capacity* (as of December 31, 2023)			
Federal state	**Cumulative capacity**	**Cumulative number**	**Share**	**Capacity per km²**
Lower Saxony	12.542 MW	6.169 WEA	21%	263 kW/km²
Brandenburg	8.662 MW	4.039 WEA	14%	292 kW/km²
Schleswig-Holstein	8.549 MW	3.241 WEA	14%	541 kW/km²
North Rhine-Westphalia	7.153 MW	3.610 WEA	12%	210 kW/km²
Saxony-Anhalt	5.331 MW	2.752 WEA	9%	261 kW/km²
Rhineland-Palatinate	4.005 MW	1.780 WEA	7%	202 kW/km²
Mecklenburg-Western Pomerania	3.722 MW	1.852 WEA	6%	160 kW/km²
Bavaria	2.636 MW	1.150 WEA	4%	37 kW/km²
Hesse	2.536 MW	1.181 WEA	4%	120 kW/km²
Thuringia	1.830 MW	869 WEA	3%	113 kW/km²
Baden-Württemberg	1.795 MW	782 WEA	3%	50 kW/km²
Saxony	1.361 MW	873 WEA	2%	74 kW/km²
Saarland	544 MW	218 WEA	1%	212 kW/km²
Bremen	203 MW	87 WEA	0%	483 kW/km²
Hamburg	125 MW	68 WEA	0%	166 kW/km²
Berlin	17 MW	6 WEA	0%	19 kW/km²
Germany	**61.010 MW**	**28.677 WEA**		**171 kW/km²**

* with a minimum capacity of > 100 kW

Source: Figure, Status of Onshore Wind Energy Expansion in Germany - in the year 2023 / Deutsche WINDGUARD

Offshore wind energy and photovoltaics:
Off the coast of Lower Saxony, more and more wind turbines are turning. Overall, the installed offshore wind farms generate enough electricity to supply over 5 million households.

In photovoltaics, Lower Saxony is a leader in the north of Germany with an installed capacity of more than 5.6 gigawatts. The significant addition of 600 megawatts in 2022 alone could cover the annually electricity needs of about 165,000 households.

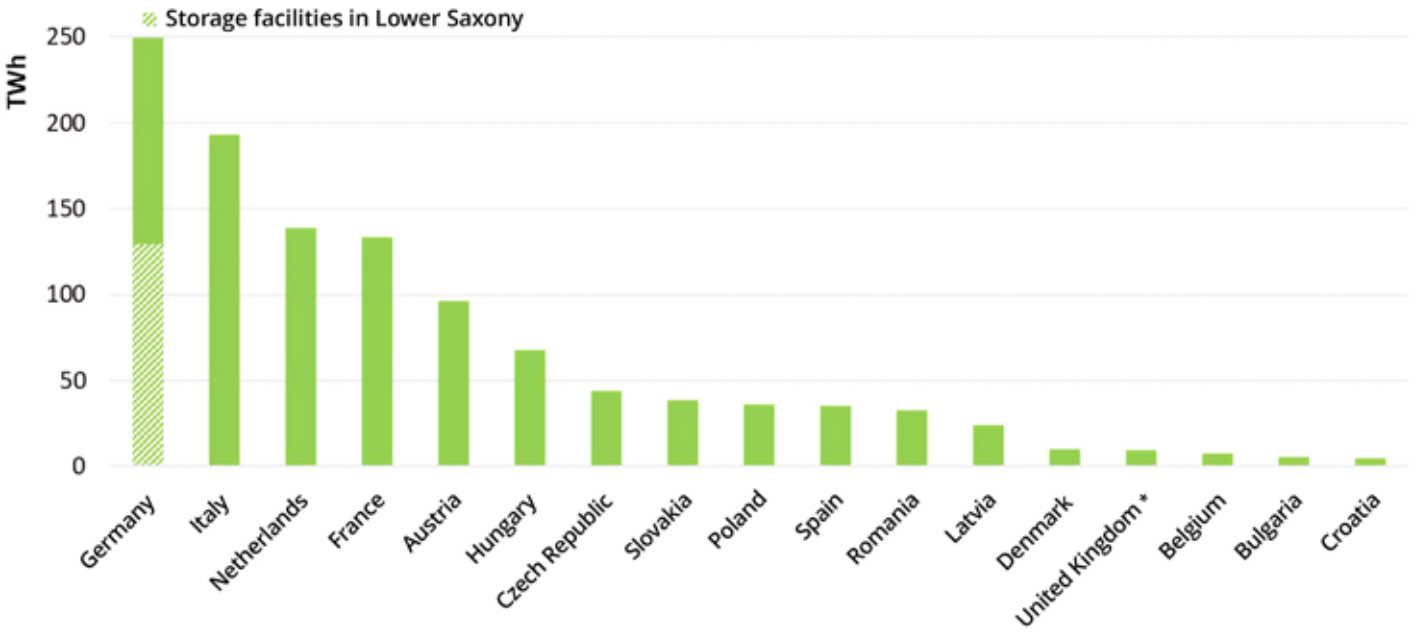
Leading position in biomass:
Lower Saxony is a nationwide leader in biogas. The installed capacity of 1.89 gigawatts can provide electricity to approximately 2 million households.

Promotion of deep geothermal energy:
Lower Saxony is investing a double-digit million Euro amount in promoting geothermal energy as a clean energy source, particularly for heating supply.

3. Lower Saxony – State with the largest energy storage capacities

Lower Saxony plays an important role in energy storage, particularly in hydrogen storage

Working gas volumes of gas storage facilities in Lower Saxony / Germany compared to the EU:



As of March 2023 | Representation MU, Data sources: Gas Infrastructure Europe (GIE), DVGW (*Non-EU Member)

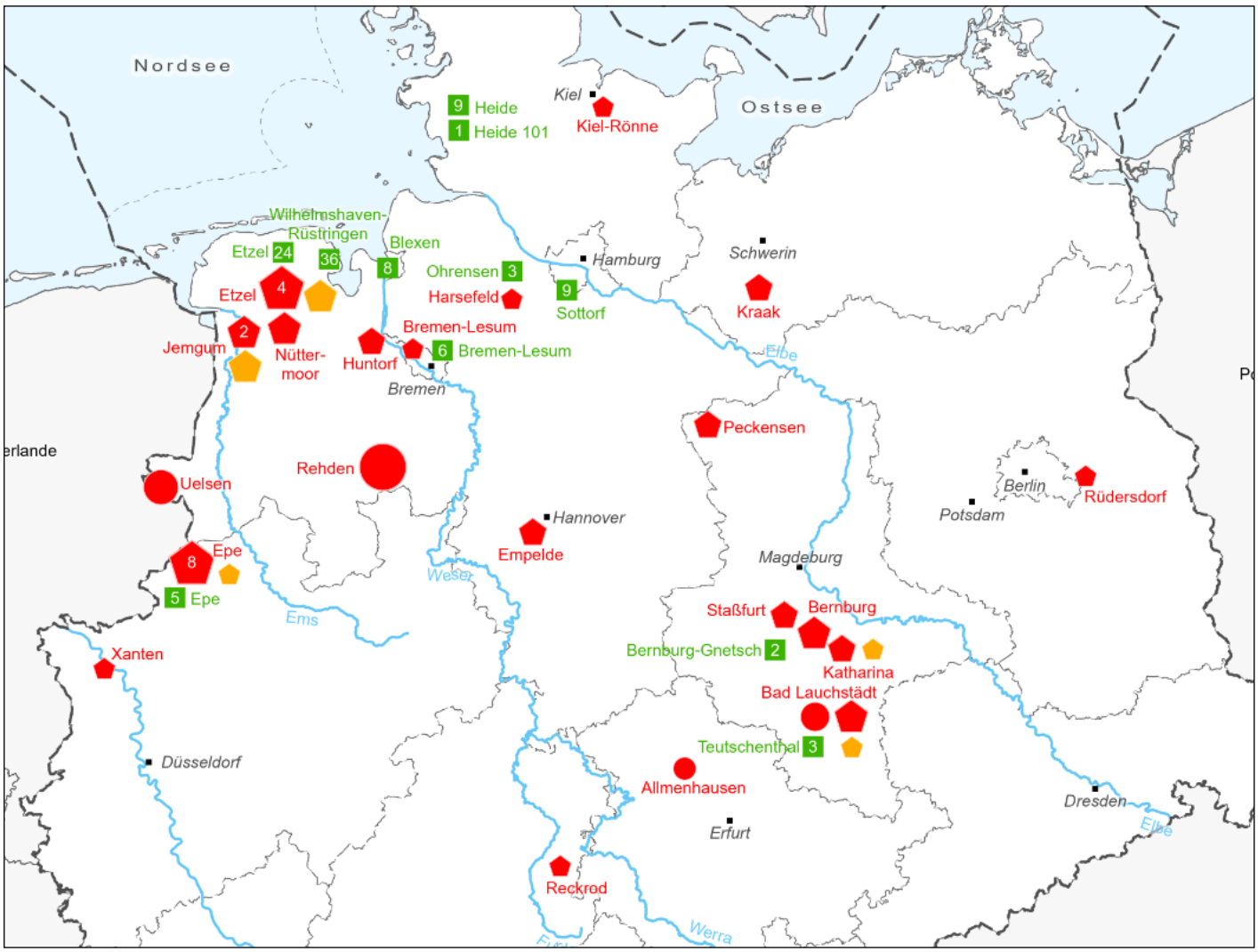
Here are some key pieces of information showing how Lower Saxony is advancing in this area:

Significant share of European gas storage: Approximately 11% of the working gas volume available in Europe is located in Lower Saxony. For instance, the large underground caverns, that are currently used to store natural gas, are ideal for storing lare quantities of hydrogen in the future.

High expertise in science and research: More than 20 research institutes and universities in Lower Saxony are dedicated to researching hydrogen as a key element in reducing CO2 emissions (decarbonization).

Versatile industrial applications: Lower Saxony is home to numerous industries that utilize hydrogen, including manufacturers of road and rail vehicles, ships, airplanes, steelworks, and the chemical industry.

Good prospects for the future: Storage facilities will play a central role in the energy transition, especially in the storage of green hydrogen. Projects like H2-CAST in Etzel are exploring whether about 50 gas caverns can be used for large-scale hydrogen storage in the future. Lower Saxony is supporting this initiative with 8 million euros. Other projects such as KRUH2 in Krummhörn and SaltHy in Harsefeld are also in progress and are supported by funds from the Ministry for Environment, Energy, and Climate Protection of Lower Saxony.



Underground storage for:
Natural gas

Available working gas in millions of cubic meters V_n

- 0 to 200
- larger than 200 to 600
- larger than 600 to 2400
- larger than 2400

Planned / in operation

- Cavern storage
- Pore storage
- 4 Number of storages at a site if there is more than one

Crude oil, petroleum products, LPG

In operation

- Cavern storage
- 2 Number of individual storages

0 50 100 Kilometer

N

As of 31.12.2022

LBEG

Ideal logistics infrastructure: The port and pipeline infrastructure in Lower Saxony are optimally equipped for the distribution and utilization of hydrogen.

Huge capacities for gas storage: Germany has the fourth-largest capacity for underground gas storage in the world. In Lower Saxony alone, there are 12 underground natural gas storage facilities with more than 12 billion cubic meters of working gas volume. For comparison: that's as much as about 7,680 Olympic swimming pools can hold. The Rehden pore storage facility is one of the largest in Western Europe. Underground natural gas storage facilities are used to balance load fluctuations as well as daily and seasonal consumption peaks in the gas network.

So, Lower Saxony not only plays an important role in the generation but also in the storage of renewable energies, particularly regarding the future of hydrogen technology.


HÜPFERMANN

4. Lower Saxony – State with the best grid infrastructure

Electricity: Lower Saxony as a powerhouse for renewable energies

Primary producer of renewable energies: Lower Saxony is already and will become even more a central producer of electricity from renewable sources, particularly wind power. Lower Saxony generates much more electricity than is consumed within the state, effectively becoming a power plant for renewable energies for the whole of Germany. The surplus electricity is exported to other parts of Germany via large power lines.

Modern and secure electricity grids: Lower Saxony already has a highly modern and secure electricity grid for transporting electricity from renewable sources. The high-voltage alternating current transmission grids (220 kV or 380 kV) act as highways for electricity. They can transport large amounts of energy over long distances, connecting various regions. These grids enable the absorption of electricity from renewable energy sources and its injection into distribution grids. The distribution grids – high, medium, and low voltage grids – act as smaller roads that deliver electricity directly to end consumers. They also facilitate the integration of electricity from smaller, decentralized generation sources such as wind, solar, or biogas plants.

Expansion of network infrastructure: The planned expansion of renewable energies in Lower Saxony requires rapid expansion of electricity transmission and distribution grids. This is necessary to transport green electricity from the wind-rich northern regions to the consumption-intensive southern and western regions of Germany. At the same time, it enables the integration of a growing number of flexible consumers such as electric vehicles, heat pumps, and energy storage systems.

In Lower Saxony, a variety of new network expansion projects are being advanced at all levels (transmission and distribution grids). This includes strengthening and expanding the existing interconnected grid, expanding high and extra-high voltage lines, and constructing new direct current lines for north-south transportation. Additionally, the connection of offshore wind farms to the transmission grid is being expanded further.

Gas: Lower Saxony as an energy hub and pioneer for a green future

Natural gas transport and import infrastructure: Lower Saxony plays a crucial role in natural gas supply, not only for itself but also for Germany and Europe. With natural gas pipelines from Norway and the Netherlands landing on the Lower Saxony coast, as well as the establishment of LNG import infrastructure in Wilhelmshaven and Stade, Lower Saxony is becoming increasingly central as an energy hub.

Extensive gas pipeline and storage network: Lower Saxony has a well-developed long-distance distribution network for gas, as well as the largest gas storage capacities in Germany. This infrastructure ensures the continued transport and storage of natural gas at various pressure levels.

Future-oriented infrastructure for hydrogen: The existing gas infrastructure in Lower Saxony is not only important for natural gas but also visionary for climate-neutral energy supply. It is suitable for the transport and storage of biogas, synthetic methane, and, with appropriate adjustment, also for hydrogen.

Responsibility and development of the gas network: Five of the 16 major long-distance network operators in Germany operate in Lower Saxony and are responsible for the expansion and maintenance of gas pipelines. Every two years, the Network Development Plan (NEP) Gas determines which measures are necessary for safe and reliable network operation in the next ten years. In order to meet climate goals, there are plans for an ongoing network development planning for hydrogen and gas in the future.

Transformation towards green hydrogen: Lower Saxony aims to quickly convert the energy infrastructure from natural gas to the production and transport of hydrogen. Due to its extensive onshore and offshore potentials, its location on the North Sea coast, and its well-developed infrastructure, Lower Saxony is ideally positioned to become a central import hub and a key hub for supplying the German industry and energy sector with green hydrogen.

Hydrogen: Lower Saxony as the center of green energy

The hydrogen core network: Lower Saxony is at the center of the planned nationwide hydrogen core network. This network is intended primarily for the distribution and utilization of green hydrogen. Green hydrogen is produced from electricity generated from renewable sources. The goal is to produce green hydrogen both offshore and onshore, import it via pipelines as well as the ports in Wilhelmshaven and Stade, and store it in underground salt caverns.

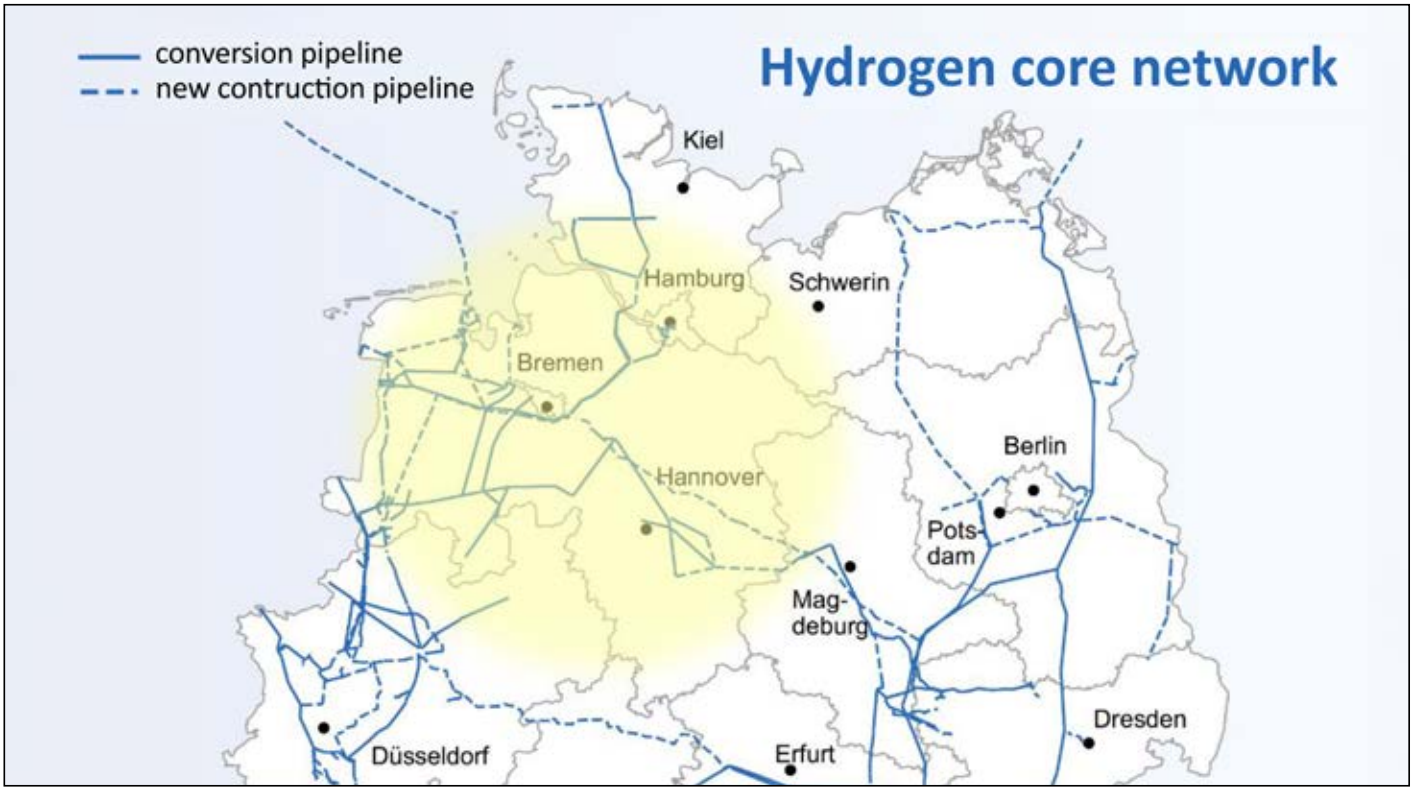


Figure: Extract from the current draft of the hydrogen backbone network in the Northwest region (As of: November 14, 2023)
Source: https://fnb-gas.de/pressematerialien/wasserstoffnetz_entwurf-wasserstoff-kernnetz/

Connecting key points: The hydrogen core network will connect all key points – production sites, storage locations, and industrial consumers – in Lower Saxony and extend beyond the state borders. This will make Lower Saxony a central hub for the transformation of the energy industry and significantly contribute to supply security in Germany.

Building on IPCEI projects: The federal government and the government of Lower Saxony together intend to support projects for the construction of electrolysis plants with a capacity of up to 850 megawatts (MW) in Lower Saxony. They account for around 40% of the electrolysis capacity approved nationwide in this funding program. Another project is the conversion of a cavern storage facility in Huntorf (near Elsfleth) for large-scale hydrogen storage. In addition, over 600 kilometers of hydrogen pipelines will be created, partly by repurposing existing natural gas pipelines and partly by new construction. All these projects are part of the Important Project of Common European Interest (IPCEI). They lay the groundwork for a transnational infrastructure for hydrogen transport.

Realization by 2032: It is planned to gradually implement the core network by 2032 to transport climate-neutral hydrogen. Existing gas pipelines will be converted, and new pipelines will be built as needed to fill in the gaps.

Essential part of the energy transition: The development of the hydrogen core network is a crucial part of the energy transition and a prerequisite for the transformation of the industry. It enhances Lower Saxony's attractiveness for energy-intensive companies and promotes sustainable, future-oriented economic structures.

The developments in electricity, gas, and hydrogen underline Lower Saxony's role as a central hub for the generation and transport of renewable energies. This is crucial for achieving climate neutrality in Germany.

5. Lower Saxony – Central hub for energy imports

LNG imports via Wilhelmshaven and Stade:

In December 2022, the first German LNG terminal, a Floating Storage and Regasification Unit (FSRU) for Liquefied Natural Gas (LNG), commenced operations in Wilhelmshaven. This terminal is the first of a total of five floating LNG terminals chartered by the federal government, intended to contribute to secure gas supply. In total, Wilhelmshaven imported around two-thirds of the total LNG volumes received by Germany via floating terminals in 2023. So far, the imported LNG volumes have accounted for approximately 7% of the total physical gas flow to Germany.

Climate-neutral methane project in Wilhelmshaven:

The company Tree Energy Solutions (TES) is planning an import terminal for climate-neutral methane in Wilhelmshaven. Here, hydrogen is planned to be imported using synthetic methane. Specifically, the company intends to produce hydrogen using electricity from hydropower in Canada and solar energy in West Asia, and then synthesize it into methane (CH4) using carbon dioxide (CO2). After the methane arrives in Wilhelmshaven, the carbon dioxide will be separated and transported back to Canada or West Asia to produce methane again. Initially, blue hydrogen (from natural gas) will also be used, with the proportion of green hydrogen from renewable energies expected to increase over time. TES also plans to utilize industrial CO2 (e.g., from the cement industry) and transport it to the synthesis plant.

FSRU and LNG terminal in Stade: In record time, Hanseatic Energy Hub GmbH (HEH) has put an FSRU into operation in Stade, which will be active until the completion of the stationary, Green-Gas-Ready LNG terminal in 2026/2027. The facility, located on the premises of the chemical company Dow Chemical, will utilize its industrial waste heat for emission-free heating and conversion into gas. It is designed to regasify up to 13.3 billion cubic meters of natural gas per year, which would correspond to approximately 18% of Germany's gas demand in 2023 at full capacity. In the future, the facility is planned to also handle bio-LNG, synthetic natural gas, and hydrogen.

These developments highlight: Lower Saxony assumes a central role in energy import infrastructure. The state is simultaneously developing new pathways for environmentally friendly and sustainable energy supply and putting them into practice.

The seaports of Stade and Wilhelmshaven with their LNG terminals are ideally suited for the import and distribution of hydrogen.

Hydrogen in Lower Saxony

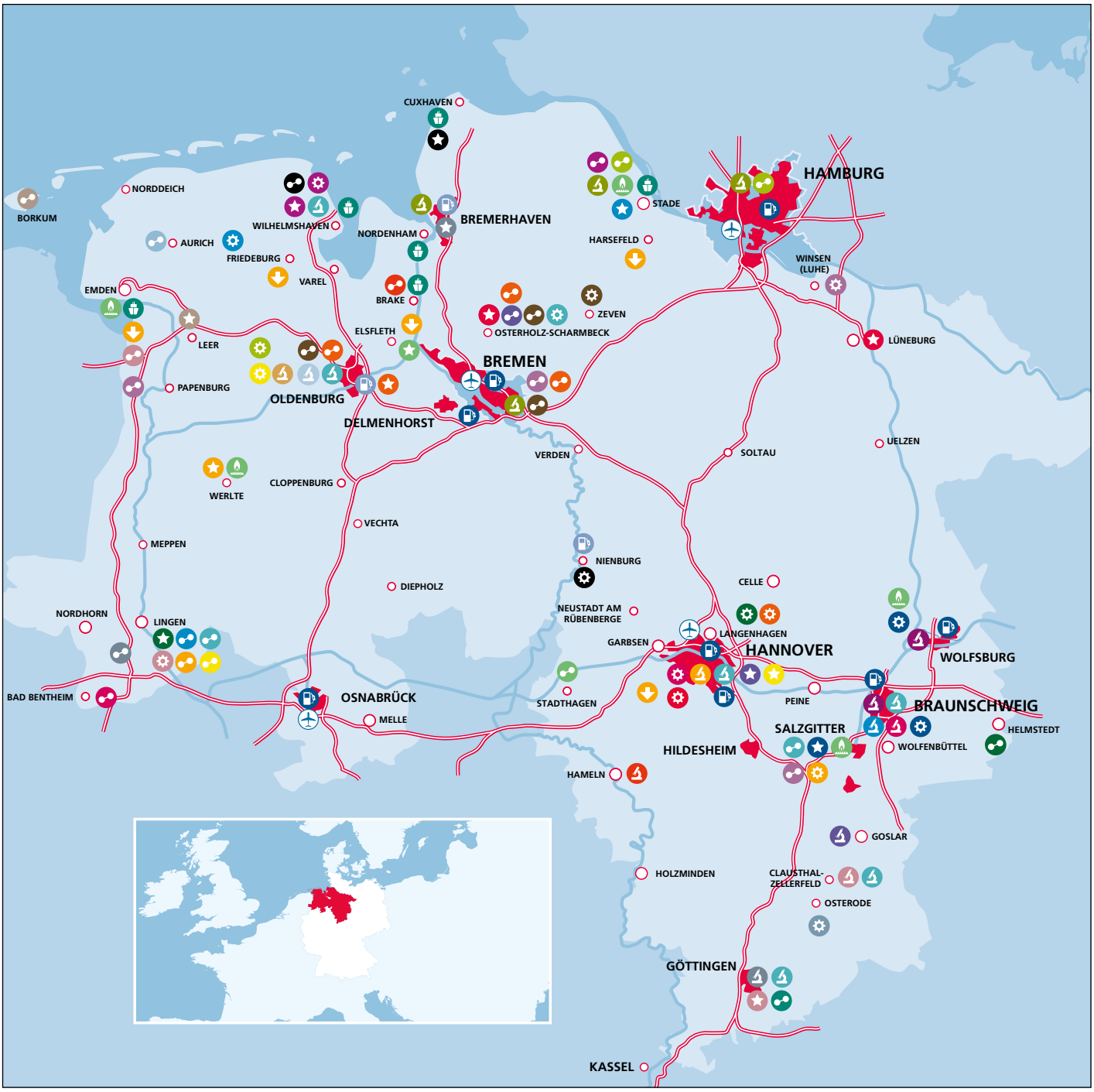


Figure: Actors and infrastructures of the Lower Saxony hydrogen economy
(Source: Lower Saxony Ministry of Economics, Transport, Construction, and Digitalization; https://www.nds.de/fokusbranchen/wasserstoff)

The figure and the following legend provide an overview of the Lower Saxony actors, projects, research institutions, and infrastructures of the hydrogen economy in Lower Saxony. The excellent conditions in Lower Saxony ensure a vibrant and growing development in many areas of hydrogen.

The key to the hydrogen map

- Seaports
- Airports
- Highways
- Waterways

Hydrogen infrastructure

- Fuel stations
- Planned fuel stations
- Cavern storage
- Power-to-gas plants

Research and development

- University institutes
- Energy Research Center of Lower Saxony (EFZN)
- ForWind - Center for Wind Energy Research
- Automotive Research Center Niedersachsen (NFF)
- Clausthal Institute of Enviromental Technologies (CUTEC)
- German Aerospace Center (DLR)
- Fraunhofer Heinrich Hertz Institute
- Fraunhofer Institute for Surface Engineering and Thin Films (IST)
- Institute for Integrated Production (IPH)
- Institute for Solar Energy Research Hameln (ISFH)
- Physical-Technical Federal Institute (PTB)
- Innovation and Technology Center North (in planning)

State institutions, cluster and regional networks

- Lower Saxony Innovation Center
- Lower Saxony Hydrogen Network (NWN)
- 3N Competence Center
- Composites United e.V. CU Nord
- Cuxhaven Hydrogen
- H2 Alliance Southern Lower Saxony
- H_2-Region Emsland
- Mariko
- Maritime Cluster North Germany MCN
- Oldenburger Energiecluster OLEC
- WAB e.V.
- Hydrogen Campus Salzgitter
- Hydrogen hub Wilhelmshaven
- Hydrogen hub Northeast Lower Saxony

Hydrogen projects

HyLand Projects

- HyStarter district Schaumburg
- HyStarter Ostfriesland
- HyStarter Bad Bentheim
- HyExpert H_2 -Freight traffic
- HyExpert H2Brake CO2
- HyExpert H_2 Emsland region
- HyExpert district Helmstedt
- HyPerformer Hyways for Future

Real-world laboratories of the energy transition

- Reallabor Element Eins
- Reallabor CO_2 nversion

IPCEI hydrogen

- Clean Hydrogen Coastline
- Get H2
- Green Crane
- Green Methanol
- Hyperlink
- LGH2
- WIPLiN

Interreg

- H2Watt

Other Projects

- HydroGEN, Green Wilhelmshaven, NGE2050 Next Generation Energy
- ViridisH2 Southern Lower Saxony

Hydrogen technology provider

- Alstom
- Aspens
- BASF
- Bohlen & Doyen
- Busses4Future
- CleanLogistics
- Eisenhuth
- H2Cloud
- Hitachi Zosen INOVA
- Faun
- IAV
- JA-Gastechnology
- nass magnet
- Rosen Group
- Tree Energy Solutions
- Toyota Material Handling

6. Lower Saxony – Beacons of transformation

North German Hydrogen Strategy: Lower Saxony, together with Bremen, Hamburg, Mecklenburg-Western Pomerania, and Schleswig-Holstein, has adopted the „North German Hydrogen Strategy." The objective is to make the northern region of Germany a pioneer in the hydrogen economy. One focus is on promoting collaboration between science, industry, and politics. With the „HY-5" campaign, the states aim to establish Northern Germany as a leading location for hydrogen in Europe.

Source: Faun, Heilshorn

Faun and hydrogen vehicles: Faun, a company that manufactures garbage trucks and sweepers, has developed an innovative propulsion concept called „Faun BluePower." This combines battery and fuel cell technology to reduce pollutant emissions.

Get H2-Project: The „Get H2-project", part of the IPCEI, aims to establish the first publicly accessible hydrogen infrastructure in Germany. A pipeline network connects the production of green hydrogen in Lingen with industrial consumers in Lower Saxony and North Rhine-Westphalia, laying the foundation for a hydrogen economy in Germany.

Hyways for Future: The energy company EWE is working, in collaboration with businesses, politics, and the public, to achieve emission-free transportation with green hydrogen in the Northwest metropolitan region and Northern Germany. The focus areas include cities like Oldenburg, Bremen, Wilhelmshaven, Bremerhaven, and Cuxhaven.

SALCOS® - Salzgitter AG: SALCOS® (Salzgitter Low CO2 Steelmaking) is a project by Salzgitter AG aimed at reducing CO2 emissions in steel production by over 95% through the conversion to hydrogen-based direct reduction.

Coradia iLint – Hydrogen Train: ALSTOM Salzgitter unveiled the world's first hydrogen train in 2016. After a test phase, regular operation with Coradia iLint series trains commenced in the Weser-Elbe network from 2022, replacing the previous diesel multiple units.

Hydrogen Campus Salzgitter: The „Innovation Alliance Hydrogen Campus Salzgitter" focuses on closely connecting stakeholders from business and science in the region to transfer knowledge and technology across industry, science, politics, and society. Once again, Lower Saxony takes responsibility and engages in a rapid transformation of mobility and production towards a sustainable and climate-friendly future.

7. Lower Saxony – Research and development for energy innovation

Diverse research landscape: Lower Saxony is not only an energy hub but also a hotspot for research and development in the energy sector. Scientists at university and non-university locations conduct interdisciplinary cutting-edge research covering a wide range of areas.

Research focuses: The particular strengths of Lower Saxony's research landscape include::

- Battery technologies: Development of advanced energy storage solutions.
- Digitalization in the energy system: Integration of digital technologies to optimize energy management.
- Geo-energy systems: Utilization of geothermal energy sources.
- Social science aspects of the energy transition: Investigation of the social and economic impacts of transitioning to renewable energies.
- Materials science: Research into new materials for energy applications.
- Power-to-X technologies: Conversion of electricity into other forms of energy or raw materials.
- Solar energy: Development and improvement of solar technologies.
- Integrated energy systems/sector coupling: Integration of various energy sources and consumers.
- Heat research: Innovations for the efficient use and storage of heat.
- Hydrogen: Research into the production, storage, and utilization of hydrogen.
- Wind energy: Optimization and further development of wind power technologies.

Interdisciplinary approach: Lower Saxony's energy research pursues a holistic approach that integrates various disciplines to enable the transformation towards a sustainable and socially accepted energy system.

Energy Research Center Lower Saxony (EFZN): The EFZN serves as a central platform for research, networking, and communication in energy research in Lower Saxony. It brings together expertise from natural and engineering sciences as well as legal, social, and economic sciences, connecting stakeholders from science, industry, politics, and civil society. This collaboration makes Lower Saxony an ideal location for current and future energy innovation projects.

Through its comprehensive and interdisciplinary research orientation, Lower Saxony promotes the development of forward-looking energy solutions.


THÖMEN
WIEG BAUER

8. Lower Saxony – Energy state No. 1 – Outlook

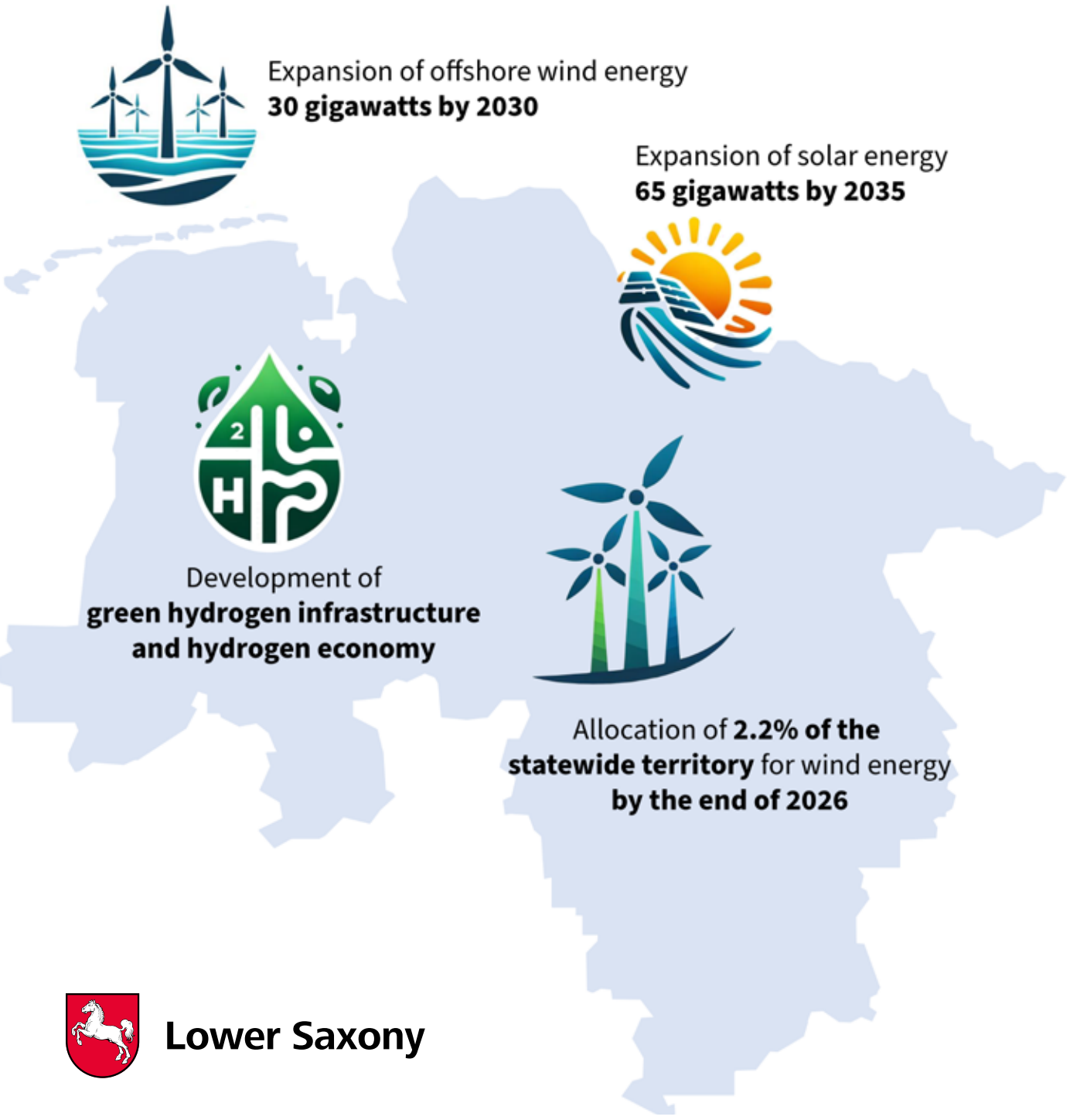
The further implementation of the energy transition will continue to be of utmost priority in Lower Saxony. Thanks to its geographical location, Lower Saxony offers excellent conditions for the expansion of renewable energies, especially onshore and offshore wind energy. By the end of 2026, a total of 2.2% of the state's area is planned to be designated for onshore wind energy.

Due to its outstanding coastal location, Lower Saxony is also driving forward the expansion of offshore wind energy and will thus play a significant role in achieving the nationwide expansion target of 30 gigawatts by 2030. The expansion of solar energy will also be significantly increased to reach the expansion target of 65 gigawatts of installed capacity by 2035. The accelerated expansion of renewable energies is clearly a focus in Lower Saxony – it not only serves climate protection but also ensures the state's energy security and price stability.

Moreover, green hydrogen is considered a necessary component for decarbonization and the transformation of energy supply and the economy, and will be a significant part of the energy transition in the future. With its projects under the IPCEI funding (Important Projects of Common European Interest), Lower Saxony is a pioneer and on its way to becoming number 1 in Germany and Europe with the establishment of its green hydrogen infrastructure and economy.

To achieve the ambitious goals and realize the transformation of the economy, the Taskforce Energy Transition, a cross-departmental expert group in the state government, has been established. The Taskforce provides targeted support and advice to municipalities and project sponsors on all questions and challenges that arise. The Taskforce closely follows the Pact for Accelerating Planning, Approval and Implementation between the federal and state governments. The aim of this pact is to significantly accelerate and streamline the realization of public and private projects.

Lower Saxony is also creating the necessary conditions to achieve its ambitious goals with the new Climate Protection and Adaptation Act and further legal frameworks, and is on its way to becoming the number 1 energy region. The state, its workforce, companies, and research institutes will continue to live up to their pioneering role.



Lower Saxony