



Position Paper on the German National Hydrogen Strategy

The German federal government plans to publish a National Hydrogen Strategy. HYPOS e.V. expressly welcomes this initiative. Since 2013 HYPOS partners from industry, SMEs and research have been working on technical solutions for a green hydrogen value chain in 30 projects. To this end, the HYPOS initiative is being supported with 45 million euros from the Federal Ministry of Education and Research as part of the “Zwanzig20-Programm”. With this position paper, HYPOS aims to formulate central demands for a future National Hydrogen Strategy.

Green hydrogen is the energy carrier of the future. Green hydrogen can be produced from renewable energies, transported and stored via the gas network and used in almost all sectors. The process is completely CO₂-free. It can already be used today whenever a direct-electrical solution does not make sense for technical or economic reasons. Hydrogen enables sector coupling and thus becomes the link between the electrical and material world.

Export potential of water electrolysis. The technology of water electrolysis has in recent years been significantly developed in Germany. Now it is time to take the next step from a project-driven to a commercial market. This requires stable sales figures and long-term investment security for SMEs and industry. Since Germany will not be able to supply itself completely with renewable energy in the foreseeable future, the worldwide sunny and windy locations offer excellent opportunities to import water electrolysis from Germany and export green hydrogen. For this purpose, long-term stable foreign trade relations must be established. HYPOS calls on the Federal Government to recognise these synergies with a National Hydrogen Strategy and to make industrial policy with hydrogen. Hydrogen is economic power.

Basic industry. In the Middle German Chemical Triangle up to four billion standard cubic metres of hydrogen are consumed per year. Up to now, this demand has been met almost exclusively by fossil resources and in future will be only substitutable by green hydrogen. In order to promote the necessary defossilisation, HYPOS calls on the Federal Government to take appropriate measures in the National Hydrogen Strategy to encourage the industrial use of green hydrogen. These include the adjustment of the levy and allocation system in the electricity and gas market, consumption quotas for green hydrogen, an ambitious implementation of RED II and an effective CO₂ price.

Energy transport and storage. The volatility of renewable energies regularly causes bottlenecks in the electricity grid. In the event of surplus plants must be shut down because the transport capacities are insufficient. Since the expansion of the electricity grid is progressing very slowly and requires considerable investment, HYPOS calls on the German government to focus more on energy transport using green hydrogen, that can be generated from surplus energy and transported via the gas network



to large-scale consumers. This is the only way to quickly integrate renewable energies into the energy system. For this, HYPOS partners have developed technical solutions in numerous projects. These include, for example, a roadmap to convert gas networks to higher hydrogen concentrations or ceramic membranes to separate hydrogen from natural gas mixtures. In order to make renewable energies baseload-capable, large storage facilities are also necessary for the seasonal storage of energy. Green hydrogen is also suitable for this purpose. HYPOS is developing a salt cavern as a large-scale hydrogen storage facility with corresponding integration into the energy system. HYPOS calls on the German government to recognize green hydrogen as a necessary energy storage medium for the renewable energy system of the future.

Mobility and transport. Green hydrogen will be part of the mobility of the future. Although private transport will rely to a large extent on direct-electric drives, fuel cell drives are particularly suitable for fleets and large vehicles such as trucks, trains, ships or airplanes due to high demands on range and refuelling time. In order to help them enter the market, the National Hydrogen Strategy must recognise green hydrogen regulatory as fuel, encourage the expansion of the filling station network and support public institutions and municipalities in the procurement of fuel cell vehicles. These niche markets will enable widespread experience and commercialisation. HYPOS calls on the federal government to think about the mobility of the future open to technology.

Hydrogen regions. Some regions in Germany are major industrial consumers of hydrogen for decades. These include the HYPOS region with the Middle German Chemical Triangle and a dedicated hydrogen pipeline. Due to their existing infrastructures these locations are ideally suited for the area-wide use of hydrogen in industry, energy and transport. HYPOS calls on the federal government to recognise regions as experimental spaces for green hydrogen and to have technical developments and regulatory exceptions tested on site. Only in combination of different consumers green hydrogen can exploit its full technical and economic potential.

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About HYPOS

More than 100 companies, universities and research institutes are currently members of Hydrogen Power Storage & Solutions East Germany e.V. The association is the nationwide network for the innovation project HYPOS. The project consortium pursues the goal of producing green hydrogen from renewable electricity on an industrial scale for the chemical industry, electromobility and urban energy supply. Within the framework of a hydrogen model region the chemical gas grid, the natural gas grid and the electrical grid in eastern Germany are to be combined to reach economic parity with fossil based hydrogen. The Federal Ministry of Education and Research (BMBF) is funding the project with 45 million euros as part of the Zwanzig20-Programm.

