

HYDROGEN & DECARBONIZATION

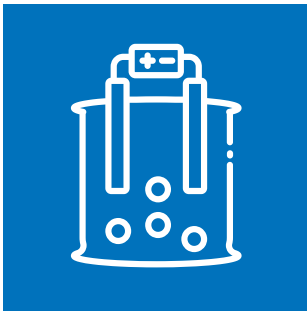
Hydrogen will play an important role on the road to reducing greenhouse gas emissions. Fichtner advises you all the way from the initial idea to the turnkey plant.

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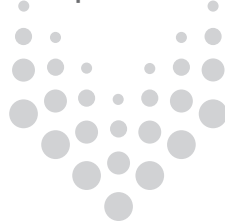
Hydrogen and decarbonization

Hydrogen has the potential to decarbonize many sectors of our economy, be it the energy, mobility or industrial sector. For more than three decades, Fichtner has been developing solutions for hydrogen production and usage. We cover the entire spectrum from the integration of Power-to-X projects into energy systems, to the conception of integrated projects for hydrogen production and consumption, through to plant design and project management.

The entire hydrogen value chain from a single source



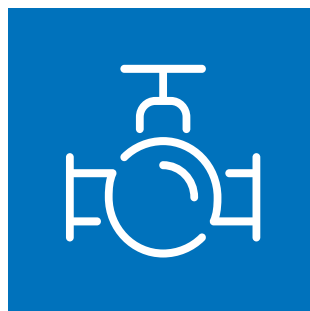
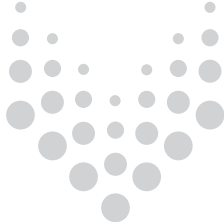
Upstream



Upstream – Hydrogen production and processing

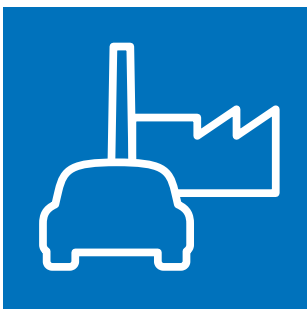
Renewable energies can be stored in chemical form when hydrogen is produced through electrolysis. Fichtner's Power-to-X solutions also include the processing of hydrogen into methane and synthetic fuels. In addition, we have extensive knowledge and experience in alternative processes for hydrogen production, such as steam reforming with carbon capture and storage as well as pyrolysis.

Midstream

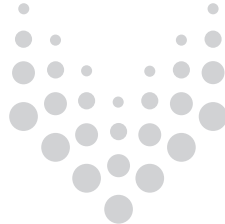


Midstream – Distribution infrastructure

An increasingly widespread use of hydrogen requires a distribution infrastructure. Fichtner's experts have been planning and implementing hydrogen infrastructure for aerospace in ground facilities for decades: from compression and piping systems, to pressure regulating and metering stations. In combination with our experts from the gas industry, we offer expertise for the conversion of existing infrastructure as well as for the construction of new infrastructure, all from a single source.



Downstream



Downstream – Hydrogen usage

Mobility applications nowadays offer great potential for hydrogen as an energy carrier. Fichtner advises on the development of potential business cases and develops these further into technical designs. For clients in our core business segments (energy and industry), we also analyze the effects a higher hydrogen content in the fuel will have on consumers.



Integrated solution concepts for decarbonization

The current political environment is characterized by increasing pressure to decarbonize the energy sector. Other industry sectors, such as the automotive and steel industries, are equally affected. Hydrogen can make significant contributions in this context. As a chemical energy carrier, it can help to decarbonize the energy, mobility and industrial sectors.

More and more companies are recognizing this potential. On an international level, we are noticing a dynamic growing interest in the production of CO₂-neutral raw materials and fuels based on hydrogen, especially in countries with low-cost electricity from renewable energies.

Through decarbonization and sector coupling, market shares in existing industries will shift and business models will partly undergo fundamental change. In our opinion, exploiting these dynamics represents an essential challenge for companies.

Fichtner has extensive engineering know-how in all project phases in the field of hydrogen production and usage, and along the entire value chain of the hydrogen economy. This includes Power-to-X and alternative hydrogen production

processes, such as steam reforming in combination with carbon capture and storage. It also includes plant construction for hydrogen infrastructure and distribution as well as applications for electricity and heat generation, the mobility sector, and use in industrial processes.

Exploiting the dynamics in the field of hydrogen and decarbonization, however, requires even more. We are convinced that interdisciplinary strategic planning and the development of business models are fundamental for success in this field. Through the combination of our technical expertise with a team of energy economists, system analysts and management consultants, Fichtner offers the opportunity to develop practical and sustainable solutions for companies and policymakers. This enables us to offer our clients complete solutions tailored to their needs.

Solutions for hydrogen and decarbonization

Decarbonization of the energy, mobility and industrial sectors will inevitably change our society and the business models of many companies. We develop tailor-made solutions for the challenges faced by our clients, from the development of business models and first concepts, to the realization of turnkey plants, O&M concepts and further related consultancy services. Our team of energy economists, engineers and consultants provide support along the entire hydrogen value chain – from production to infrastructure and usage.

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Fichtner is one of the leading independent engineering and consultancy firms for infrastructure projects. With its home office in Stuttgart, Germany, and its subsidiaries, affiliated companies, branches and project offices throughout the world, the Fichtner Group can call on a global network of experienced experts for planning and executing projects in the fields of energy, water, environment, transportation and IT. Fichtner's focus is on providing independent consultancy to develop bespoke solutions that best meet the needs of its clients.

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