

H2Brazil

Contextualization

The share of renewable energies in Brazil's energy matrix has been increasing in the last years: 46.1% of the Domestic Energy Supply in 2019 to 48.4% in 2020. The trend is that this number is expected to grow at the same time as production costs go down.

This positive scenario makes Brazil a promising country in the production of green hydrogen (H₂), both given its natural and climatic conditions, as well as its geography and low prices of renewable energy.

Green hydrogen is produced through electrolysis from electricity and renewable sources, i.e. with zero emissions, and is therefore an important element of Vision 100, the complete decarbonization of energy production. In the future, green H₂ will contribute to mitigating the effects of climate change and help achieve the goals of the Paris Agreement.

Currently, industry is the main hydrogen consuming source in the world - it mostly uses hydrogen produced from fossil fuels, emitting millions of tons of CO₂ per year into the atmosphere.

The green H₂ produced in Brazil could be used in the transportation sector, where battery solutions are not expected to be an option in the future: aircraft, ships, long distance trucks, and heavy vehicles, such as those used in mining. It could also be used in the chemical industry, in oil and petroleum refineries, in the food industry (hydrogenation of fats), in metallurgy, and in cement and steel production. In addition, the Brazilian port infrastructure and logistics favor the export of green H₂, which could make the country a major exporter of the product.

Goal

Legal, institutional and technological conditions for the development of a green hydrogen market in Brazil have been improved.

Title	H2Brazil
On behalf of	German Federal Ministry for Economic Cooperation and Development (BMZ)
Country	Brazil
Execution partners	MME, EPE, ANEEL, ONS, EPE, SENAI, AHK, companies, Brazilian and German universities across the country
Overall Term	2020 — 2023
Investment	EUR 34 million

Approach

The H2Brasil project aims to improve legal, institutional and technological conditions for the development of a green hydrogen market in the country. To that end, up to 34 million euros are allocated in five components, called: framework conditions, dissemination, training and professional training, innovation and market expansion.

The first component aims to improve the structuring conditions for the development of the green hydrogen market in Brazil. The project will elaborate energy planning scenarios, point out needs in the current regulatory framework, and analyze the implementation of an H₂V certification system in the country.

Through communication and information dissemination, component 2 will disseminate studies, actions, and campaigns about the importance of green H₂ production in Brazil, and promote the exchange of knowledge and experiences with key influencers.



Left: Professionals talk in the middle of solar panels.

Right: Wind farm in operation.

The third component encourages the development of educational content, the implementation of laboratories with infrastructure for learning, and professional training actions in green H2 technologies through the training of multipliers - with the perspective of gender inclusion.

Component 4 supports the development of innovative technologies for the production of green H2 and its PtX derivatives. Thus, it supports Brazilian universities through various activities, such as the installation of laboratories or exchanges with German research institutions and universities. In addition, innovation competitions are planned in the area of green H2 involving technology centers, research centers and start-ups.

Finally, component 5 works to evaluate and support the improvement of the economic viability of the industrial application of green hydrogen in Brazil. Several actions are foreseen, such as the development of financing instruments to leverage the Brazilian H2V market and the implementation of an application cluster for pilot projects along the H2/PtX value chain that will be equipped with an electrolysis plant with a capacity of up to 5MW.

The MME is the political partner of the project, which also has the EPE, ANEEL, ONS, ANP, SENAI, companies, universities throughout the country and the Brazil-Germany Chamber of Commerce and Industry (AHK) as implementing partners.

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