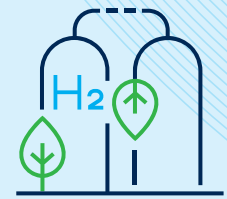


Clean H₂ Hydrogen

Scaling Up to Meet Net Zero Emissions Targets



Global efforts to keep the rise in average temperatures within 1.5°C are falling short. To achieve this goal, more extensive decarbonization measures are necessary across all sectors of the economy.

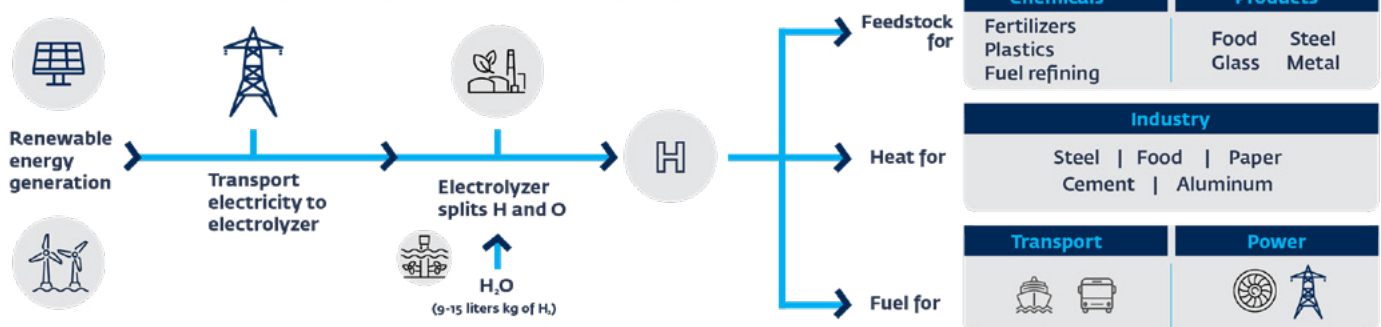
ABOUT HYDROGEN

Hydrogen is a naturally-occurring element that makes up molecules of water and hydrocarbons. It can be obtained by two primary methods: electrolysis of water and extraction from fossil fuels. The International Energy Agency estimates that in 2022, the world consumed about 95 million metric tons of hydrogen, mainly in the production of ammonia, oil refining, and chemical industries. About 99 percent of hydrogen production was fossil fuel-based, leading to significant emissions, estimated to be as high as 1000 to 1200 million metric tons of CO₂.

ABOUT CLEAN HYDROGEN

Clean hydrogen is hydrogen that is produced using methods that result in limited or zero greenhouse gas emissions. Clean hydrogen can be categorized based on its production method, mainly focusing on the environmental impact and the energy source used. Green hydrogen is one category of clean hydrogen and is defined as hydrogen that is produced via electrolysis, powered by renewable energy, such as solar, wind, hydroelectric or geothermal, to split water into hydrogen and oxygen.

THE GREEN HYDROGEN PRODUCTION PROCESS



According to the IEA's 2023 Global Hydrogen Review, to meet climate ambitions, there is a need to switch hydrogen used in existing applications, such as fertilizers, steel, chemicals and refining industries, to low-emission hydrogen and to expand the use to new applications in heavy industry or long-distance transport. Green hydrogen is one of the most promising tools to decarbonize such hard-to-abate sectors and reach net zero targets.

Despite the great promise of green hydrogen, as well as the announcement of more than 1,000 large-scale green hydrogen projects (with expected investments of over \$320 billion through 2030), only a few projects have reached final investment decision. High costs and challenges related to market and the regulatory environment are the primary barriers to financing. Governments, donors, and multilateral organizations are working to ensure appropriate incentives and regulatory frameworks are in place to support this nascent industry and accelerate the development of green hydrogen projects.

IFC'S ROLE

Recognizing the decarbonization potential of green hydrogen, IFC is working closely with the World Bank and MIGA to support its deployment. IFC's Green Hydrogen Hub consisting of experts from Global Manufacturing, Energy and Climate teams, leads IFC's efforts. As of December 2023, IFC is engaged in nearly a dozen green hydrogen projects worldwide, with potential investments exceeding \$10 billion.

IFC is committed to supporting the development of green hydrogen as part of its effort to combat climate change, create jobs and capture new opportunities for growth in emerging markets. IFC is helping fund feasibility studies and co-develop pilot projects, advising companies on bankability issues, raising concessional financing, and providing equity and debt financing for green hydrogen projects in Latin America, Africa, Europe, the Middle East, and Asia. We also offer industry-leading expertise to develop infrastructure projects that provide essential services in partnership with the private sector.



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