

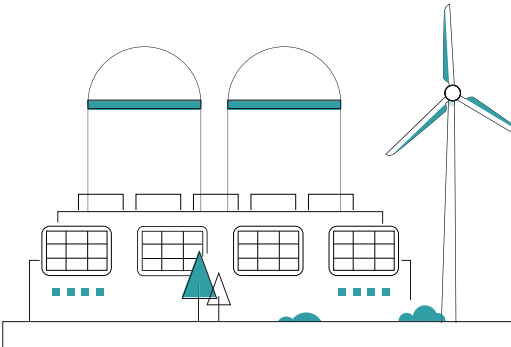
# Clean hydrogen production is poised to revolutionize the industry

While hydrogen is already widely used in industries like fertilizer production and refining, the vast majority is derived from “gray” hydrogen, processes that rely on natural gas and emit greenhouse gases.

However, the tide is turning. Interest in clean hydrogen, specifically “blue” (natural gas with carbon capture) and “green” (electrolysis powered by renewables), has skyrocketed since the 2022 US Inflation Reduction Act provided incentives for its production.

## Clean hydrogen is poised for a dramatic shift

In the transition to clean hydrogen, energy producers, governments, and electrolyzer manufacturers must collaborate. By working together, they can unlock the immense potential of clean hydrogen to decarbonize various sectors and create a cleaner future.



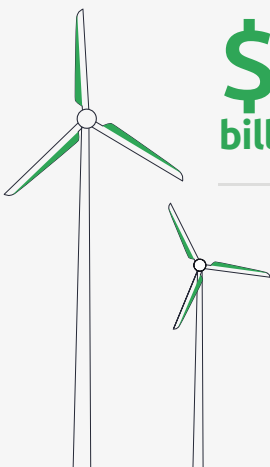
## Green hydrogen is shaking up the clean energy landscape

Green hydrogen, produced through electrolysis and powered by renewable energy sources, is emerging as a game-changer in the clean energy landscape. The Inflation Reduction Act (IRA) is fueling this transformation by [offering producers a tax credit](#) of \$3 per kilogram.

Early adopters are demonstrating market viability. In South Korea, for example, customers [are willing to pay a 23 percent premium](#) for green hydrogen compared to traditional gray hydrogen. However, overcoming project risk remains crucial for widespread adoption. To achieve this, securing offtake agreements – guaranteed contracts to buy the produced hydrogen – and establishing a clear transportation plan are key success factors.

### Sustainability in action

Industrial gas companies like Air Products, which sells industrial gases and equipment, are taking the initiative.



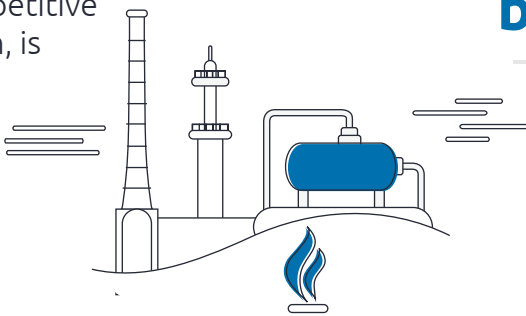
**\$4 billion** It committed a **\$4 billion investment** in low-carbon hydrogen production.

Its proposed Texas project is [expected to reduce CO<sub>2</sub> emissions](#) by over 50 million metric tons over its lifetime.

**50 million**

## Blue hydrogen offers an impressive decarbonization advantage

In the race for clean hydrogen, blue hydrogen is a promising contender. Produced from natural gas with carbon capture, utilization, and storage (CCUS) technology, blue hydrogen offers a significant decarbonization advantage. Financial backing from the US government, coupled with the fact that many blue hydrogen projects are already cost-competitive with traditional gray hydrogen, is accelerating its adoption.



### Sustainability in action

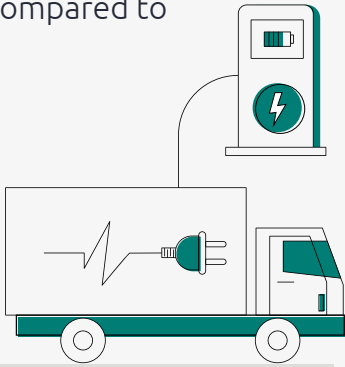
Linde, a multinational chemical company founded in Germany, is at the forefront of blue hydrogen exploration.

**\$1.8 billion** The company has **committed a \$1.8 billion investment** in a [blue hydrogen facility](#) along the US Gulf Coast.

By maximizing tax credits through emissions reduction strategies and securing customers for its clean product, Linde is positioning blue hydrogen as a key player in the future global clean energy transition.

## Hydrogen-powered technology is improving vehicle battery range

Fuel Cell Electric Vehicles (FCEVs) are zero-emission vehicles that are fueled by hydrogen. Long-haul trucking is a good opportunity for FCEVs, as weight limitations of long-haul trucks make battery electric vehicles (BEVs) less practical. Hydrogen refueling offers faster turnaround times compared to charging electric vehicles.



### Sustainability in action

[Nikola's](#) heavy-duty commercial battery electric vehicles and

fuel-cell electric vehicles enable a **500-mile range for heavy-duty trucks.** **500 miles**



Nikola's efforts demonstrate the promise of FCEVs to revolutionize long-haul trucking and create a cleaner transportation future.

Additionally, government incentives can significantly offset upfront truck costs, with estimates [suggesting up to 70 percent](#) could be covered in the US.

**70%**

Unlocking the full potential of FCEVs will be determined by two key factors:



Developing a robust hydrogen refueling infrastructure



Strategically targeting FCEVs for applications where they excel.

[Click here](#) to learn about our ongoing partnership with Venture Lab (powered by the Wharton School), and our work on advancing sustainable technologies. Ready to achieve your sustainability goals? Contact us today.

Tyler Williams  
Deputy Head, Americas Sustainability  
[tyler.c.williams@capgemini.com](mailto:tyler.c.williams@capgemini.com)

Farah Abi Morshed  
Senior Growth Strategy Manager, Americas  
[farah.morshed@capgemini.com](mailto:farah.morshed@capgemini.com)

Sazia Nowshin  
Lead Sustainability Consultant, Americas  
[sazia.nowshin@capgemini.com](mailto:sazia.nowshin@capgemini.com)