



WATER FOR HYDROGEN

Green
Hydrogen



WATER FOR HYDROGEN

At Almar Water Solutions, we acknowledge that future hydrogen production will intensify pressure on regions already grappling with water stress. Paradoxically, areas with the highest hydrogen production potential often face significant water supply challenges.

KEY FIGURES

- Stoichiometrically, 9 liters of water are needed to produce 1 kg of hydrogen and 8 kg of oxygen.
- In practice, producing 1 kg of hydrogen may require between 30 and 60 liters of water, depending on technologies, cooling methods, and water quality.

WATER QUALITY SIGNIFICANCE

The water quality introduced into the electrolyzer (ultrapure or deionized) directly influences its efficiency and durability, impacting the overall profitability. Continuous monitoring of feedwater conditions is crucial due to potential water characteristics variability (seasonal and daily variations).

TECHNOLOGY, MANAGEMENT AND FINANCING



Technology

- Assessment of the most suitable technology for preliminary treatment and conductivity reduction based on the original water type, ensuring ASTM Type I or Type II quality.
- Generation of deionized/ultrapure water with the pH and temperature best suited for the electrolyzer to maximize efficiency and durability.
- Continuous monitoring of relevant parameters to maintain quality values, ensuring expected efficiency and preventing irreversible damage.
- Treatment of waste and possible concentrates.



Management

- Evaluation of water sources with minimal conflict, preferably non-conventional.
- Assessment of potential reuse alternatives, such as cooling, and their appropriate discharge.
- Expertise in managing necessary permits at municipal, state, and confederation levels.
- Enhancement of contractual and process guarantees.

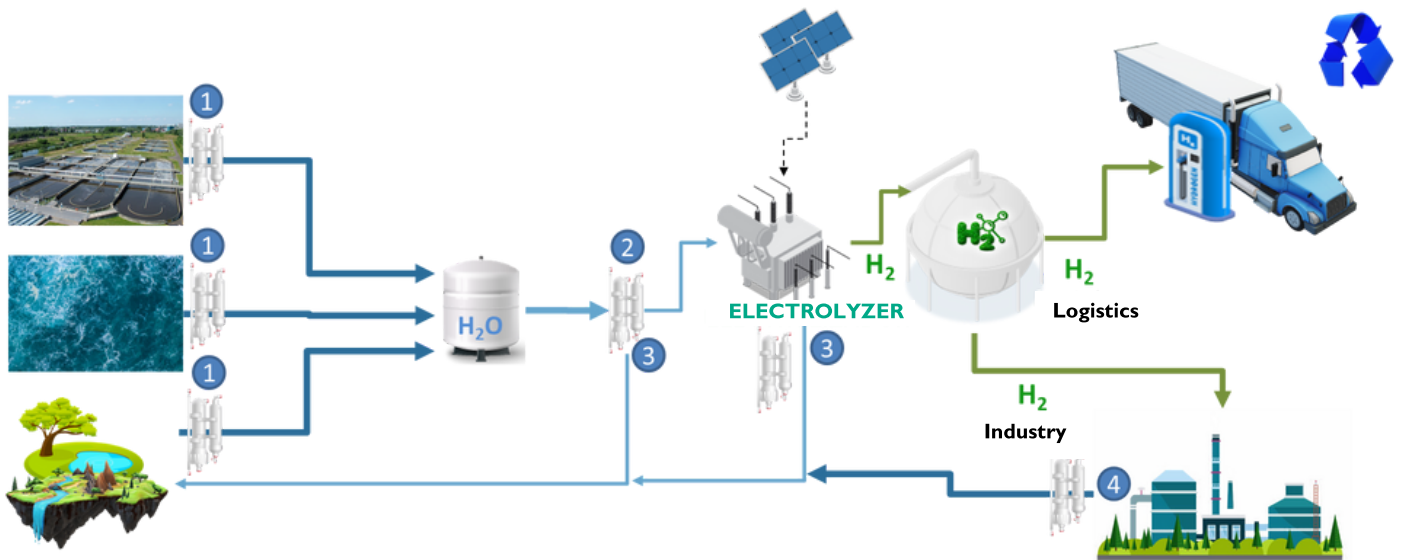


Financing

We operate under a Water Purchase Agreement (WPA) to decouple hydrogen production from any water-related challenges.



CIRCULAR ECONOMY



Water's circular economy offers numerous benefits, both socially and for businesses.

- Preliminary treatments based on the chosen source: reuse, desalination, or conventional.
- Specific treatment for the selected electrolysis technology.
- Treatment of discharge related to electrolysis processes.
- Possible treatment of adjacent industry discharge to maximize the circular economy.

ALMAR WATER SOLUTIONS

Almar Water Solutions leads the way to a sustainable and efficient green hydrogen future. Our comprehensive solution ensures hydrogen production in harmony with the environment, driving responsible innovation. We commit to supplying water from sources with the least local impact, managing necessary permits, and developing and operating the process with optimal quality for the chosen electrolyzer. With our innovative "Water Outsourcing" business model based on pay-per-use, we enable promoters to focus exclusively on their business, facilitating a transition to a more sustainable hydrogen future.

Let's build a responsible and innovative green hydrogen future!



Maria de Molina, nº 39 - 6th Floor – 28006 Madrid



+34 629 987 771



Hydrogenventures.d@almarwater.com