

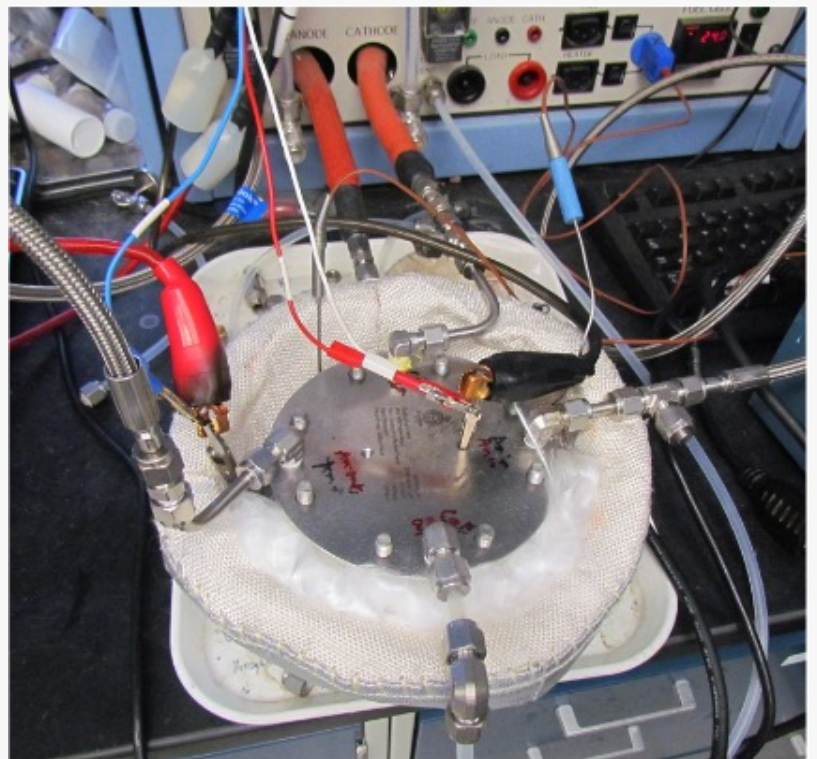
Gemini Energy Secures Exclusive Rights in Key Industrial Markets for Advanced Electrochemical Hydrogen Pump Technology

LOS ANGELES, CA, UNITED STATES, October 13, 2025 /EINPresswire.com/ -- Gemini Energy announced today that it has acquired exclusive rights from TRIAD National Security, LLC to the Ion-Pair Electrochemical Hydrogen Pump (EHP) technology developed at Los Alamos National Laboratory for refinery and petrochemical, geological hydrogen, fuel-to-power, power-to-fuel, hydrogen refueling station, and pipeline and transportation applications, along with additional non-exclusive rights in related fields representing a combined multi-billion-dollar market opportunity.

This agreement positions Gemini at the forefront of a new era in industrial decarbonization infrastructure, replacing 100-year-old mechanical compressors and pressure-based separation with solid-state electrochemical systems that move hydrogen ions instead of bulk gas molecules.

Hydrogen is central to refining, petrochemicals, steelmaking, and ammonia production, yet its purification and compression remain among the most energy- and capital-intensive steps in processing and reuse. Gemini's Ion-Pair EHP eliminates those bottlenecks. Conventional compressors and PSA systems consume large amounts of energy, require frequent maintenance, and offer limited scalability. By merging separation, purification, and compression into one electrochemical step, Gemini EHP slashes both energy consumption and capital cost while enabling a smaller, silent, and maintenance-free footprint.

"Industrial hydrogen is the quiet engine behind much of the global economy: refineries, petrochemicals, and steel all depend on it," said Nasser Ghorbani, co-founder and CTO of Gemini



Gemini Energy Short Stack Prototype

Energy. "This exclusive license allows us to transform TRIAD's electrochemical innovation into industrial systems that finally make hydrogen compression and purification efficient, scalable, and profitable."

Gemini is already in advanced discussions with Fortune 500 industrial partners for first commercial deployments in 2026, targeting applications where hydrogen recovery and compression represent significant operating costs. The company's initial focus is on refinery hydrogen networks and petrochemical hydrogen recovery, where proven reliability and rapid payback periods will establish the technology platform before expanding to emerging hydrogen markets.

About Gemini Energy

Gemini Energy is building the foundation for the next generation of industrial hydrogen systems. By replacing mechanical compressors and gas separation units with a solid-state electrochemical platform, Gemini's Ion-Pair Electrochemical Hydrogen Pump (EHP) transforms how hydrogen is purified, pressurized, and utilized. The company's technology combines the ion-pair membrane innovation from Los Alamos National Laboratory with Gemini's proprietary high-temperature cell, stack, and modular system design, engineered to operate continuously in harsh industrial environments. Gemini's mission is to make every kilogram of hydrogen processed more efficient, reliable, and profitable, accelerating the decarbonization of refineries, petrochemical facilities, and steel production worldwide.

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