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GENHYDRO
THE FUTURE OF GREEN HYDROGEN
IS THE FUTURE OF GREEN ENERGY

ABOUT US

At GenHydro™ we are all about innovation in the hydrogen industry. Our focus is utilizing a reaction-based method for hydrogen production, with the goal of high yield at a groundbreaking low cost. We firmly believe that hydrogen is going to be part of the global solution for clean renewable energy, with our reactor systems paving the way for multiple industries to lower their emissions at a low cost.

MISSION

Our mission is to produce low-cost emissions-free hydrogen, enabling a multiple industry transition to clean energy.

VISION

To help create a world with clean and universally accessible energy.

VALUES

TRANSITION. NOT A TAKEOVER.

At GenHydro™ our goal is to be a part of the global transition to emissions-free energy. What this means for us is using our technology to provide a means for existing industries to keep doing what they do best, while also moving towards emissions-free operations and production.

PARTNERSHIP

In line with our commitment to being part of the global transition, we believe that the key for the future is going to be creating cross-industry partnerships. Our strategy for growth is much less about competition than it is about mutually beneficial relationships.

COMMUNITY

We realize that hundreds of thousands of people work in the energy and fuel production industry. Our goal is not to be a disruptor to these workers and their communities, but to be a partner in helping their communities flourish, and help ensure that as the world transitions to clean energy, lives and livelihoods remain uninterrupted.

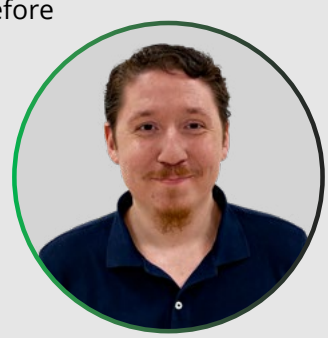
THE TEAM

ERIC SCHRAUD
CEO & PRESIDENT

Eric has a background in business strategy and information technology, with specializations in Strategic Thinking and Management for Competitive Advantage and Business and Financial Modeling. Eric worked on hydrogen technology development with a focus on reactant based methods for over a decade before founding GenHydro™.

DONG NGUYEN
CHIEF ENGINEER OF R&D

Dong Nguyen has a master's degree in chemical engineering with a specialization in chemical kinetic, catalyst and combustion modeling for applications in hydrocarbons. He also has a Ph.D. in Chemical Process Engineering with a specialization in thermodynamic modeling of polar containing systems and/or asymmetric systems of the oil and gas industry.



MATTHEW SCHRAUD
CHIEF MARKETING OFFICER

Matthew has worked in visual branding, brand strategy, market research and product development since 2011. Matthew's current role is focused on understanding the target markets for GenHydro™ and mapping the go-to-market strategy.

CHRIS KAGER
VP OF STRATEGY

Chris is a neurosurgeon and former chief of neurosurgery at Penn Medicine / Lancaster General Health. Chris is also on the board of a venture capital group, and has extensive experience in fundraising and strategy for technology startups.

BILL MONACCI
DIR. CLIENT RELATIONS

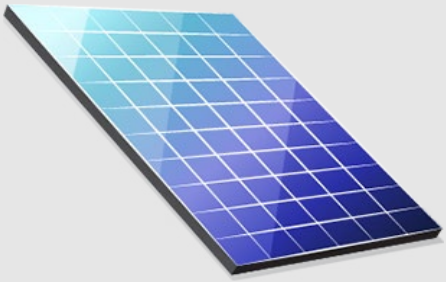
Bill served as a neurosurgeon in the US Army at Walter Reed Army Medical Center for over 18 years before continuing his practice in Lancaster, PA. As the director of client relations Bill is focused on engaging lawmakers regarding renewable hydrogen policy, and developing key relationships for supply chain and by-product sales.

THE PROBLEM FOR HYDROGEN PRODUCTION

Current methods for hydrogen production are either unsustainable or difficult and expensive to scale

SMR

Steam methane reforming (SMR) uses methane for the production of hydrogen gas. This method releases a lot of carbon in the process, and while carbon capture technology can help, it isn't 100%, meaning some carbon will always be emitted.



ELECTROLYSIS

Electrolysis is a method that uses electrical inputs to separate hydrogen from H2O. While this method is the current favorite for growing green hydrogen production, it is going to require up to 30 terawatts of wind and solar capacity in order to realize a true hydrogen economy.

COST

Green hydrogen is currently priced significantly higher than hydrogen produced from fossil fuels. This is mostly owing to the fact that renewable energy is still costly, and electrolyzer manufacturing is still very expensive.

ONE PRODUCT

The predominant methods for hydrogen production do just that — produce hydrogen. For green hydrogen, this is expected to see dramatic price decreases over the next 10 years, which means that green hydrogen plant revenue is already projected to go down.

THE SOLUTION

The GENHYDRO™ REACTOR SYSTEM

A SOLID FUEL APPROACH

The GenHydro™ reactor system utilizes a solid-fuel for separating hydrogen from water. Our proprietary solid fuel produces hydrogen when combined with water under the right conditions in our reactor system.

COGENERATES ELECTRICITY

The GenHydro reactor system not only produces hydrogen but also produces enough heat and pressure to operate a steam-powered turbine for the cogeneration of electricity alongside hydrogen.

COST-EFFECTIVE NOW

The GenHydro reactor system is capable of producing hydrogen at a low cost, hitting 2030 targets for hydrogen production way ahead of schedule. The GenHydro™ system makes hydrogen economical now!

THE MULTI-PRODUCT APPROACH

OUR STRATEGY FOR COMPETITIVE PRICING

The GenHydro™ Multi-Product Approach means that our process not only produces hydrogen, but also results in a fine powder byproduct consisting of in-demand metal oxides. In addition to our valuable byproduct, we also capture produced heat for cogeneration of electrical power. This means that fluctuations in value for one product don't need to have a major impact on overall plant profitability. This also means that we can be competitive, as our diverse product mix provides greater pricing flexibility.

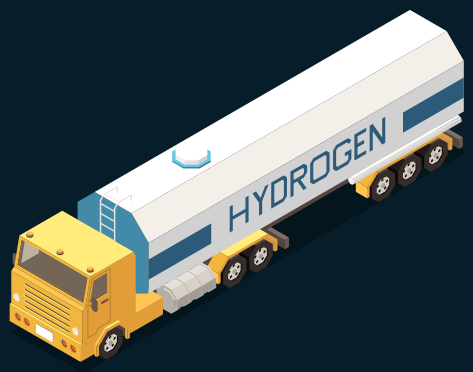
THE SOLID FUEL APPROACH

The GenHydro™ solution for hydrogen production utilizes our solid fuel. When in contact with water, under the right conditions, the solid fuel reacts, pulling the oxygen from the water molecules and releasing the hydrogen gas. Once the reaction activation energy is achieved there is no longer any need to supply energy from an external source. The reaction becomes self-sustaining as long as solid fuel and water are supplied. The reaction is exothermic, meaning large amounts of heat are released in the reaction process. This heat is captured for producing high quality steam for use in electricity generation.

SOLID FUEL VS LIQUIFIED H2

SHIPPING HYDROGEN

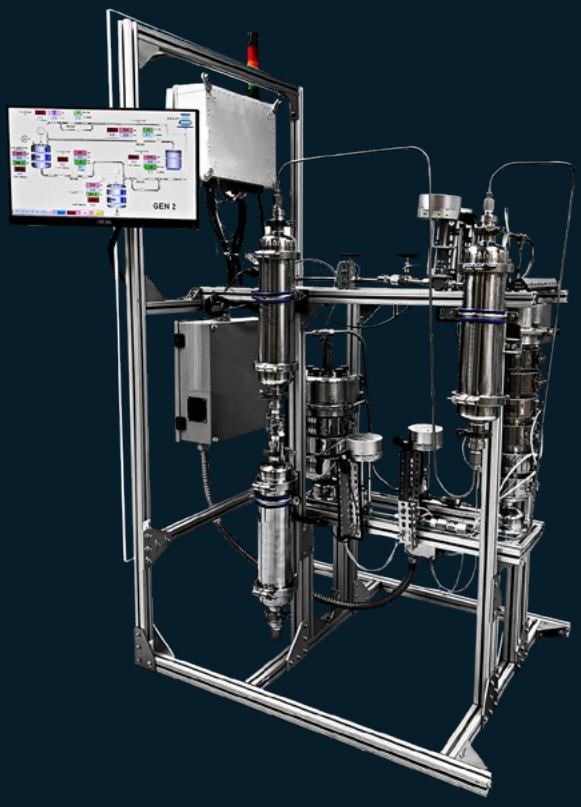
Shipping hydrogen is notoriously difficult. The reason for this is that hydrogen takes a lot of space by volume, requires a lot of energy to cool and compress, and also requires specialized tube trailers capable of containing the compressed hydrogen. What is often required is that the hydrogen gas be liquified. To do this it must be cooled to -253°C and kept at this temperature until offloaded. This can cost as much as $2,400 USD per metric ton of hydrogen when shipping long distances.



SHIPPING GENHYDRO™ SOLID FUEL

Shipping GenHydro™ solid fuel has no requirements for compression or heavy specialized trailers for transportation. To ship enough solid fuel required to produce a metric ton of hydrogen at the receiving location would be less than half the cost of shipping liquid hydrogen. With our regional approach, we aim to minimize shipping distance of solid fuel to our reactors by standing up solid fuel production facilities near installations of our hydrogen producing reactors.

THE GENHYDRO™ REACTOR SYSTEM



The GenHydro™ reactor system operates at high temperature and pressure, with high hydrogen output capabilities. The commercial scale system will produce high quality heat and pressure for cogenerating enough electrical power to meet most industrial and commercial energy needs.

This system is optimal for providing decentralized renewable energy in a variety of contexts. The most prevalent application we see for the GenHydro™ reactor system is in providing behind the fence renewable electricity, and offering the produced hydrogen to industrial and mobility sectors.

BYPRODUCT OR PRODUCT?

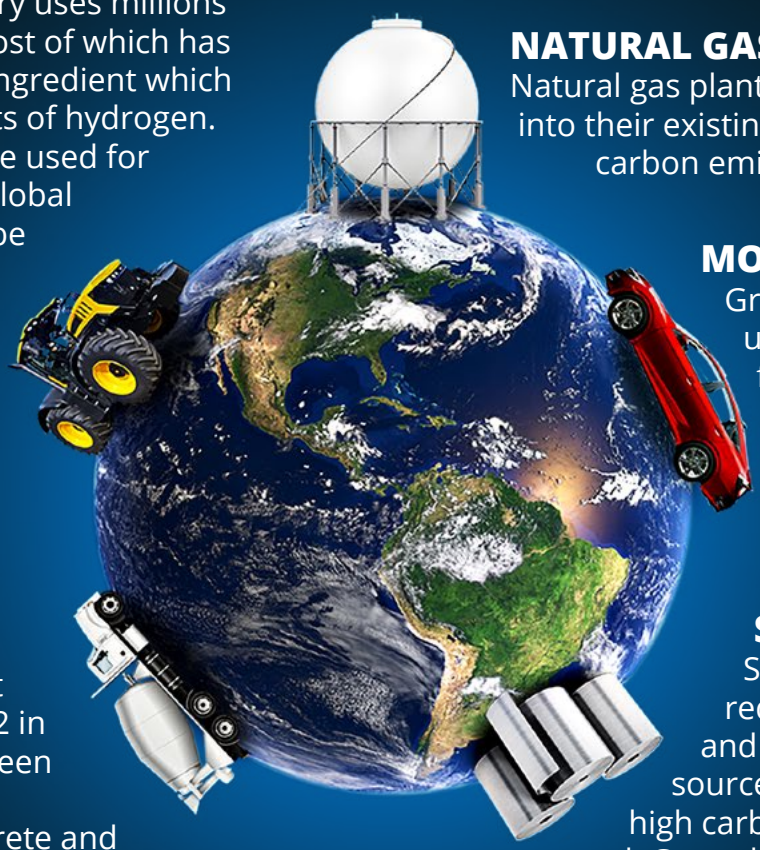
METAL OXIDE POWDERS

As a result of the reaction that occurs within the GenHydro™ system, the spent solid fuel contains several metal oxides in a fine powder form. With some light processing and separation, these metal oxides can be sold into a range of markets. As a key component to the GenHydro™ multi-product approach, the primary sector for sale of our metal oxide powder has a high enough demand that offtake is essentially guaranteed.

HOW GREEN HYDROGEN CAN CHANGE GLOBAL INDUSTRIES

INDUSTRIES IN TRANSITION

AGRICULTURE
The agriculture industry uses millions of tons of fertilizer, most of which has ammonia as a major ingredient which requires large amounts of hydrogen. If green hydrogen were used for fertilizer production, global CO2 emissions could be reduced by over 400 million tons a year.



NATURAL GAS
Natural gas plants can blend hydrogen into their existing pipelines to lower carbon emissions.

MOBILITY MARKETS
Green Hydrogen can be used to fuel hydrogen fuel cell vehicles that easily fill up on hydrogen at fueling stations just like gas powered vehicles.

CONCRETE AND CEMENT
Much like steel manufacturing, cement and concrete manufacturing use a lot of heat and emit large amounts of CO2 in the process. Using green hydrogen can reduce emissions from concrete and cement manufacturing, bringing global emissions down by more than 8%.

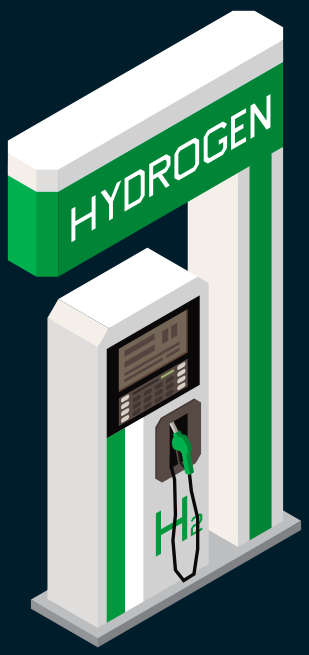
STEEL PRODUCTION
Steel manufacturing requires a lot of heat, and the most common fuel source is known as “coke” - a high carbon fuel obtained from coal. Green hydrogen can be used instead dramatically decreasing emissions from steel manufacturing.

WHAT'S NEXT?

COMMERCIALIZATION

The GenHydro™ system will be ready for commercial deployment by the 1st quarter of 2023. With the commercial scale electrical generation and hydrogen production capabilities, this system will become a vital solution for many manufacturing and industrial processes looking to decarbonize.

FUELING STATION



The sector in which GenHydro™ intends to have the greatest impact is commercial and even passenger mobility markets. With the ability to produce decentralized renewable electricity and low-cost green hydrogen, utilizing an easy to transport solid fuel, the GenHydro™ system is the best solution for developing fueling station infrastructure with both hydrogen fueling and electrical charging capabilities.

MANUFACTURING AT SCALE

We are confident that the GenHydro™ system is going to be in high demand, having already seen incredible interest and developed commercial partnerships. For this reason, a primary goal is to achieve large scale manufacturing of GenHydro™ systems and solid fuel production, allowing us to deploy systems at a rate that corresponds with customer targets and timelines, as well as playing a meaningful role in achieving global emissions reduction goals.

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