NewHydrogen

Investor Presentation - Q2 2025

Stock Symbol: NEWH

Using Heat and Water to Make the World's Cheapest Green Hydrogen

NewHydrogen is developing ThermoLoop™, our breakthrough technology that uses inexpensive heat instead of expensive electricity to split water to make green hydrogen for a future $12 trillion market.

Short Explainer Video

Forward Looking Statements

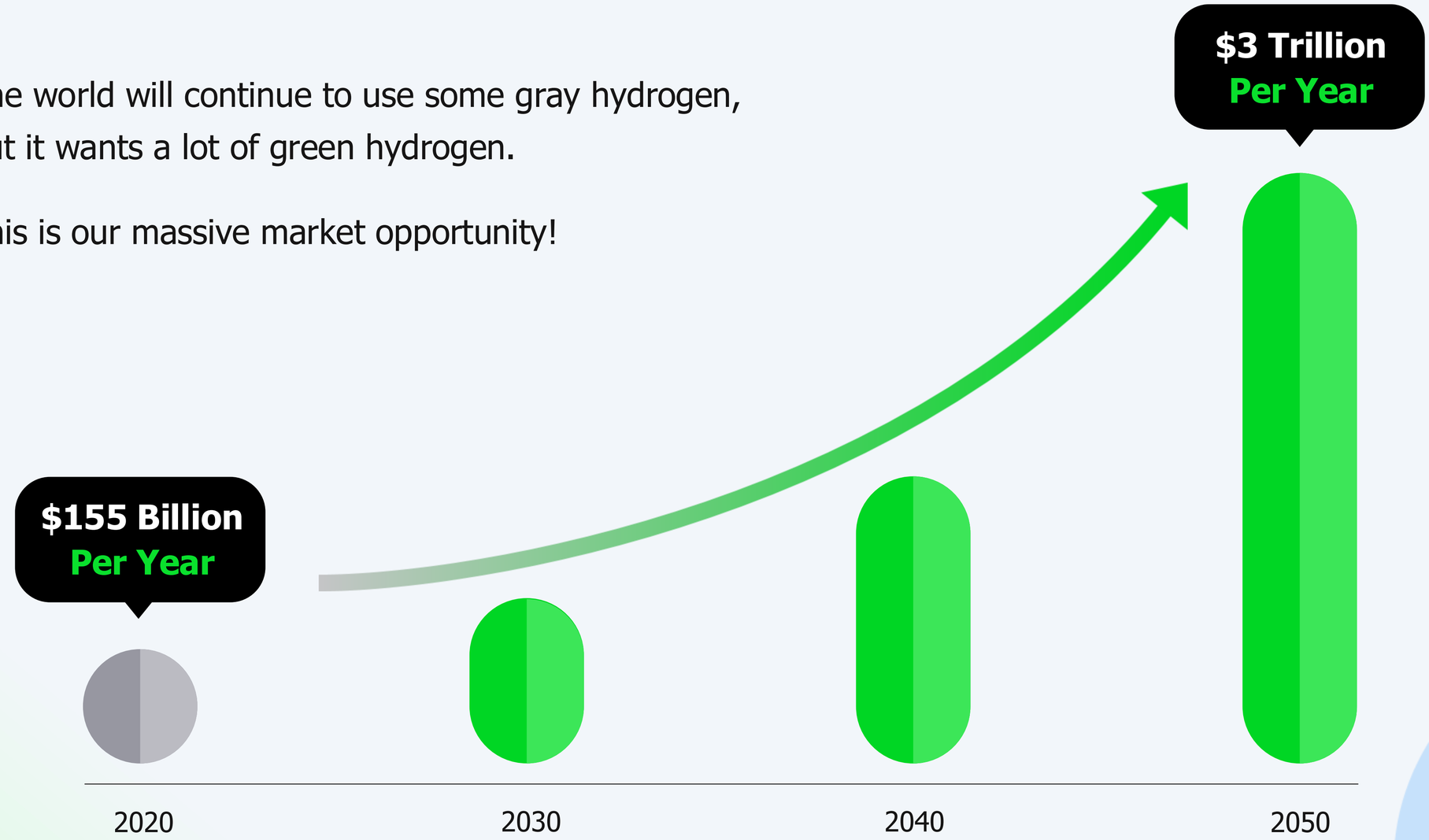
Matters discussed in this document contain forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. When used in this document, the words "anticipate," "believe," "estimate," "may," "intend," "expect" and similar expressions identify such forward-looking statements. Actual results, performance or achievements could differ materially from those contemplated, expressed or implied by the forward-looking statements contained herein. These forward-looking statements are based largely on the expectations of the Company and are subject to a number of risks and uncertainties. These include, but are not limited to, risks and uncertainties associated with: the impact of economic, competitive and other factors affecting the Company and its operations, markets, the impact on the national and local economies resulting from terrorist actions, the impact of public health epidemics on the global economy and other factors detailed in reports filed by the Company with the United States Securities and Exchange Commission. Any forward-looking statement made by us in this page is based only on information currently available to us and speaks only as of the date on which it is made. We undertake no obligation to publicly update any forward-looking statement, whether written or oral, that may be made from time to time, whether as a result of new information, future developments or otherwise.

What We Do

- Hydrogen is essential to modern life. We can’t live without it.
- Hydrogen is the key ingredient in fertilizers needed to grow food for the world.
- Hydrogen is used for transportation fuel, refining oil, making steel, glass, pharmaceuticals and more.
- Most of the hydrogen today is made from natural gas, a depleting and dirty fossil fuel. This is called gray hydrogen.
- We are developing a breakthrough technology that uses inexpensive heat and water to make unlimited amounts of cheap green hydrogen.
- Our goal is to help usher in the green hydrogen economy that Goldman Sachs estimated to be worth $12 trillion.

Market Opportunity

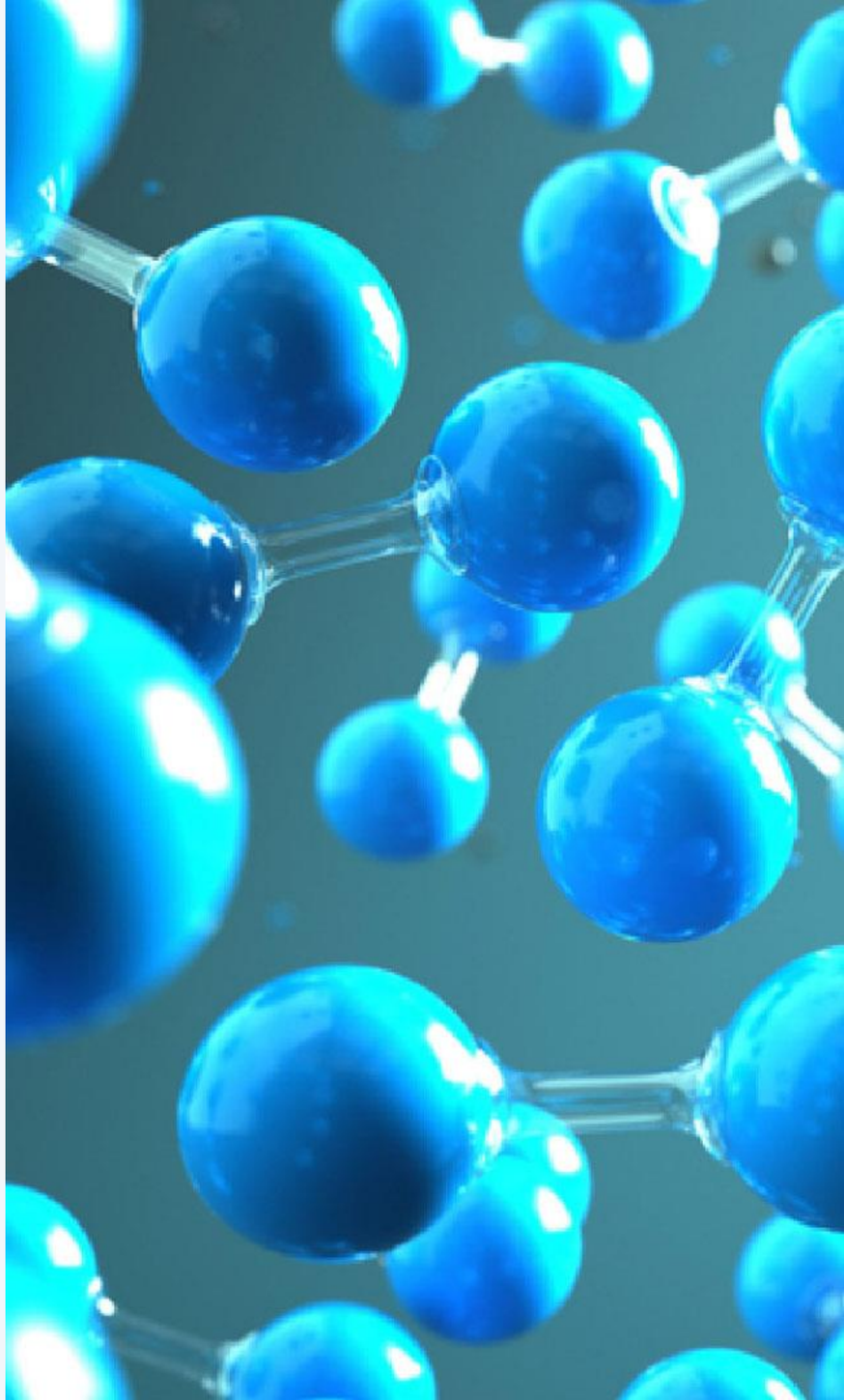
- The world will continue to use some gray hydrogen, but it wants a lot of green hydrogen.
- This is our massive market opportunity!



Hydrogen Council, 2021

The Problem

- The primary way of making green hydrogen today is to split water using green electricity (solar and wind) and electrolyzers.
- Green electricity is expensive!
- Electrolyzers are also expensive!
- Today, 73% of the cost of green hydrogen is electricity.
- Electrolyzers are based on a 200-year-old technology.
- **Now, we believe there is a better way!**

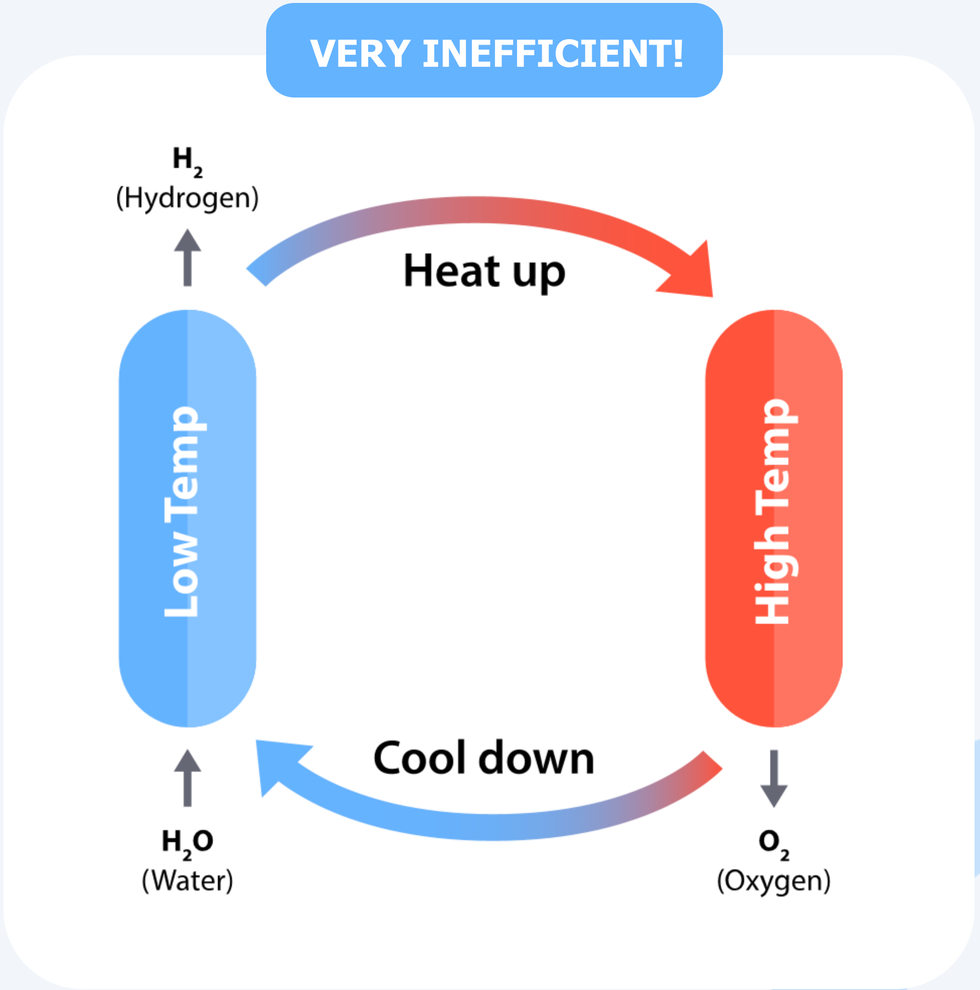


A Better Way – Use Heat

- Heat is cheap!
- Heat can be available everywhere!
  - Waste heat from industrial plants (oil refinery, cement, etc.)
  - Nuclear reactors
  - Concentrated solar
- Heat based systems are more scalable and have the potential to be cheaper than electrolyzer systems.

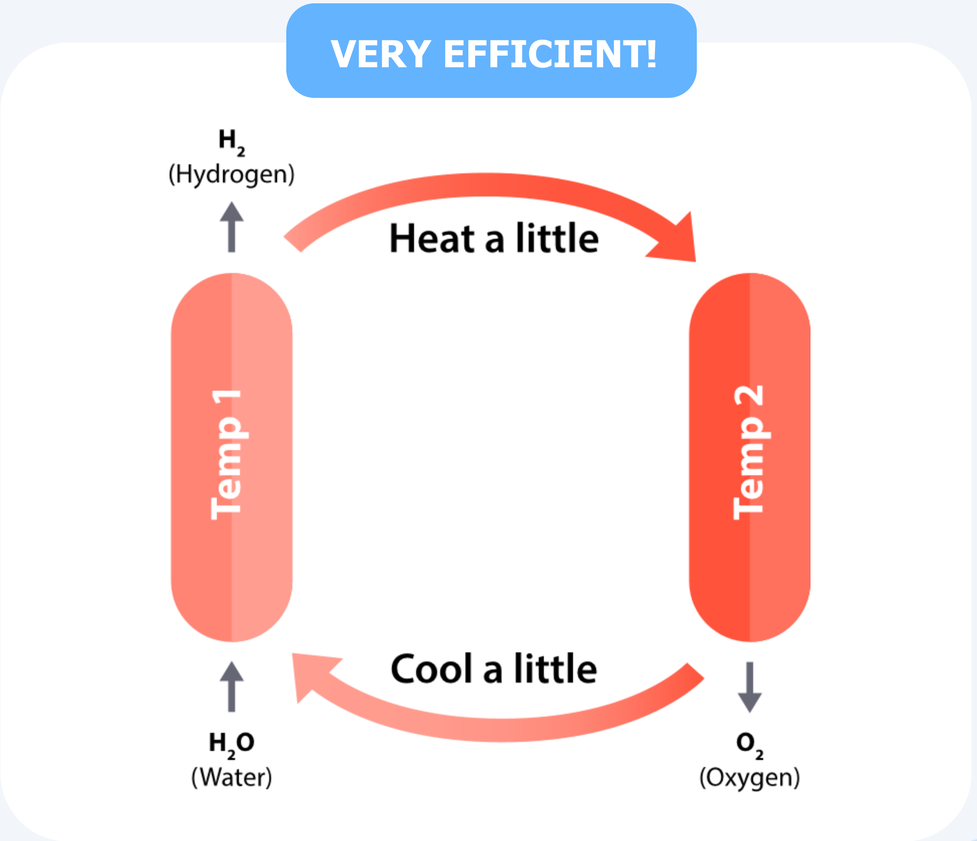
The Biggest Challenge with Heat Systems is Temperature Mismatch

- But using heat to split water has been very difficult and very inefficient.
- The biggest challenge in building a heat system is the temperature mismatch between the different chemical reactions in the process.
- One reaction extracts hydrogen from water, which usually occurs at a low temperature.
- Another reaction extracts oxygen from water, which usually occurs at a high temperature.
- While the system is heating up or cooling down, hydrogen is not produced and excess energy is wasted.
- **We believe this is incredibly inefficient!**



The Solution – ThermoLoop™

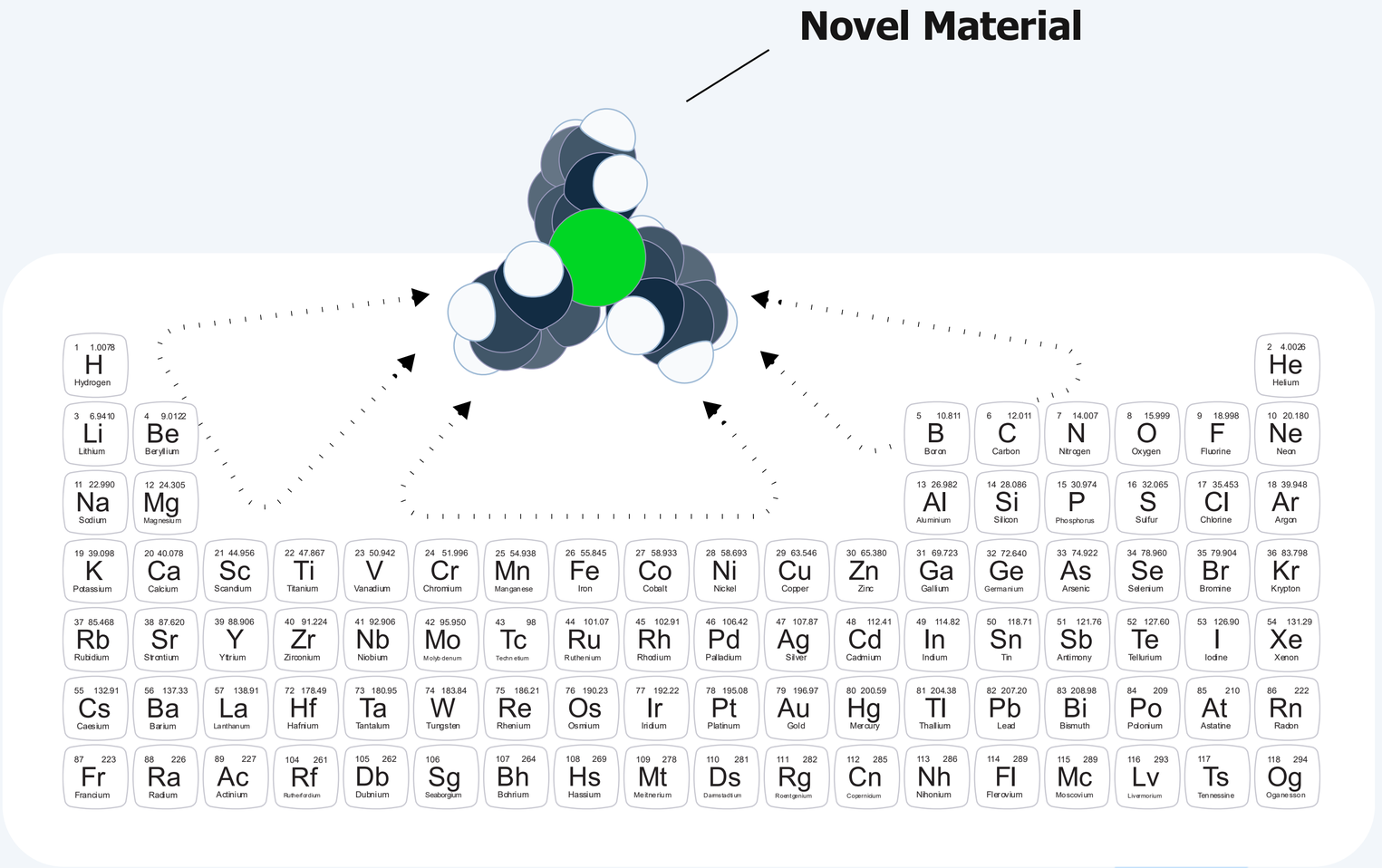
- We are developing ThermoLoop™, a breakthrough technology that can allow all reactions to happen at nearly the same temperature!
- These reactions are called near isothermal reactions.
- The process is called thermochemical water-splitting.
- Easy to say, hard to do. That is why all other thermochemical approaches have fallen short.
- To achieve this "holy grail" of isothermal reactions, **we are developing novel materials and chemical reactions** from the ground up.



When **Temp 1** is close to **Temp 2**, system downtime is minimized, and hydrogen production "loops" continuously.

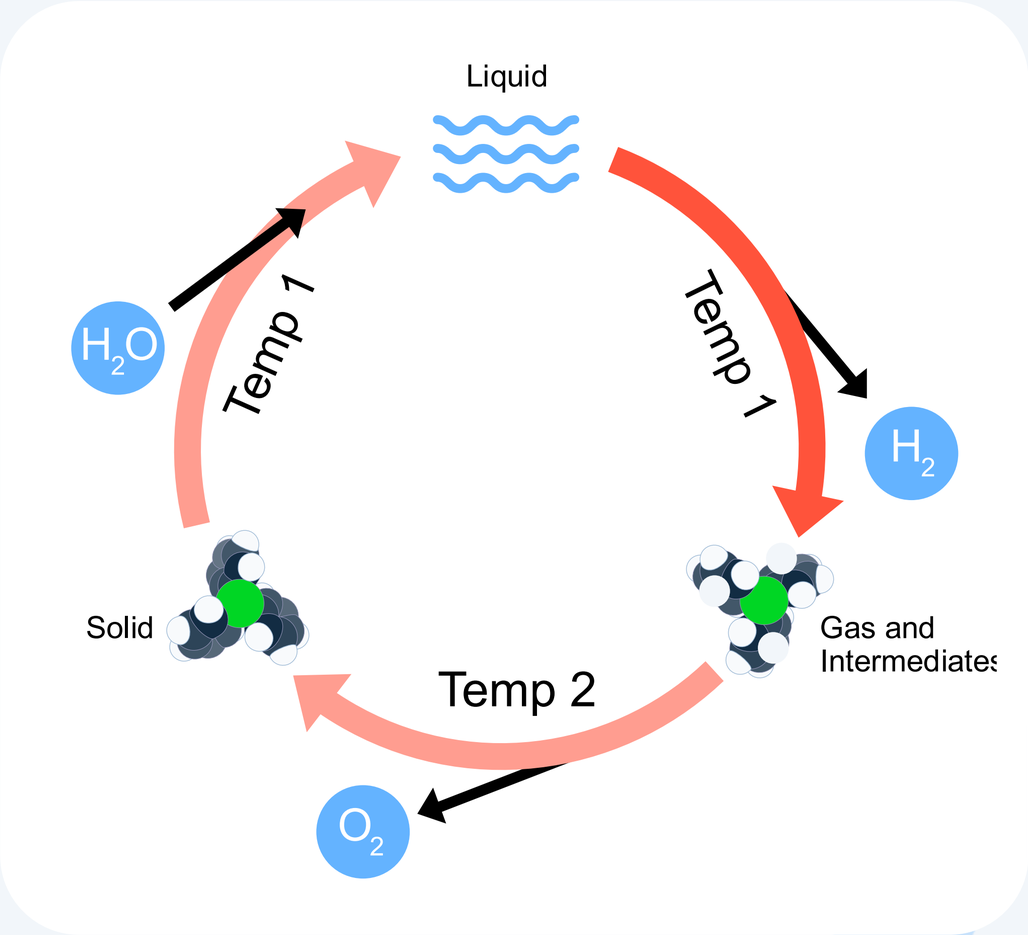
The Solution – ThermoLoop™

- Using state-of-the-art artificial intelligence and machine learning tools, **we are engineering a novel material** with just the right “goldilocks” attributes to enable scalable isothermal reactions.
- We combined materials from different parts of the periodic table to create this uniquely optimized, Novel Material.



The Solution – ThermoLoop™

- Next, we are designing a set of novel chemical reactions **using a new paradigm** that exploits the phase change properties of our Novel Material, as it cycles from solid to liquid to gas, and back to solid.
- It is this phase change that allows us to reduce the temperature difference between the reactions.
- **This is the magic trick** that we believe will allow us to achieve highly efficient isothermal reactions to enable continuous production of hydrogen from water.

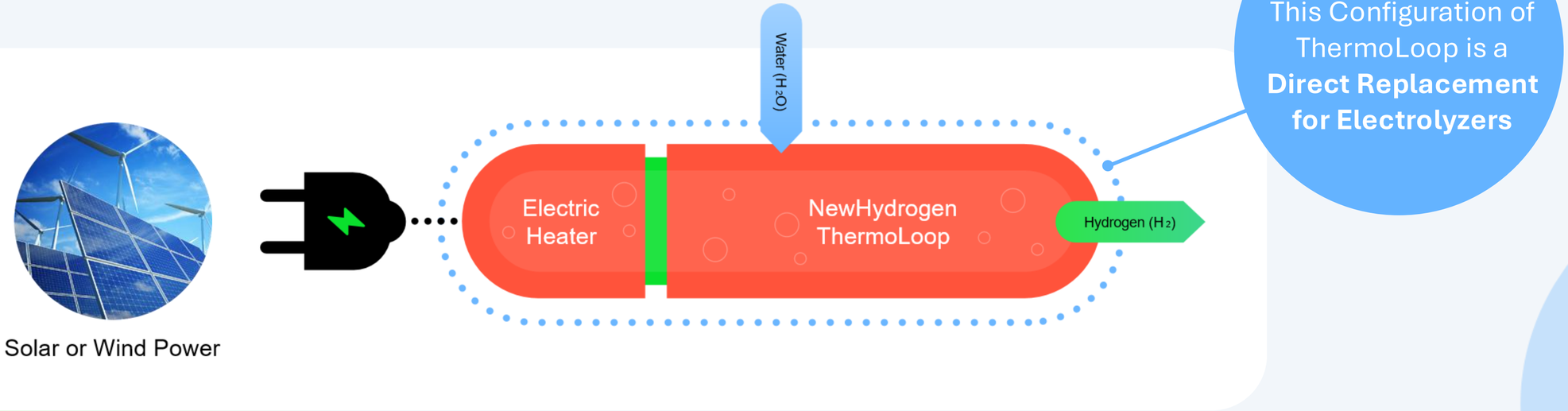


The Solution – ThermoLoop™

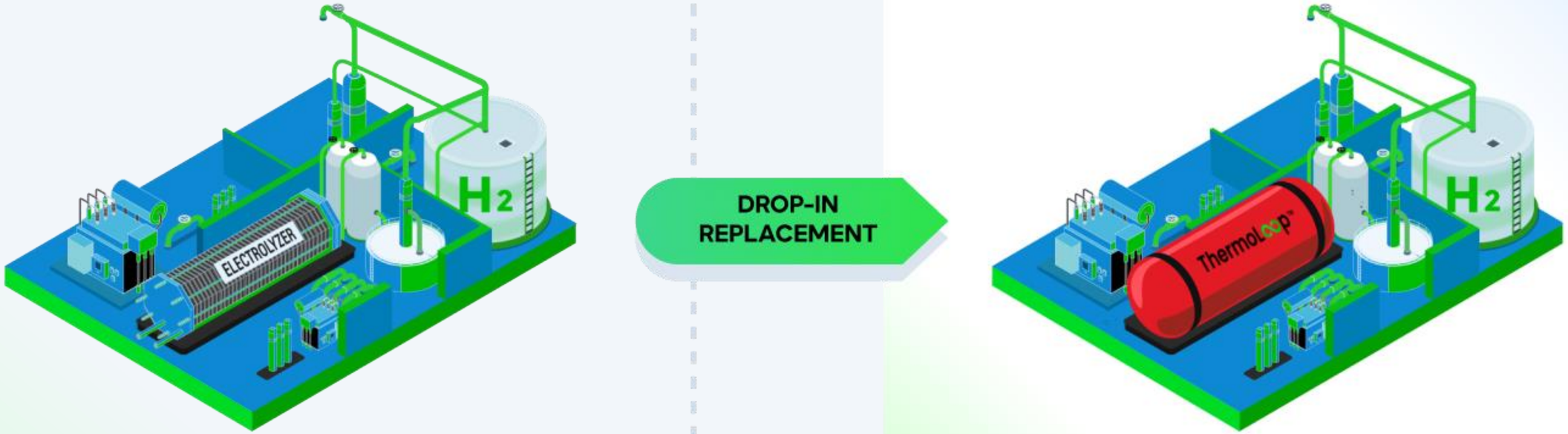
- We combine all these innovations to create ThermoLoop, a highly scalable thermochemical water-splitting system that we believe will produce the world's cheapest green hydrogen!
- ThermoLoop is agnostic to the source of heat or water.
- Couple ThermoLoop with any available source of heat, and we will have a low-cost, clean and green hydrogen production machine – anywhere, anytime!

ThermoLoop™ – The Electrolyzer Killer

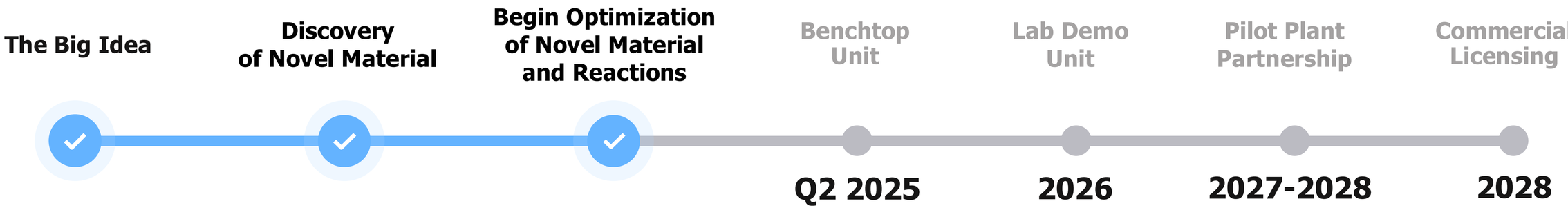
- The thermodynamics of heat systems are more efficient and scalable than electrical systems, such as electrolyzers.
- We believe we can convert electricity into heat and still outperform electrolyzers.
- This can make ThermoLoop a “drop-in replacement” for electrolyzers in applications that has electricity but not heat.
- With ThermoLoop, there’s no more need for electrolyzers.
- We believe ThermoLoop is the Electrolyzer Killer!

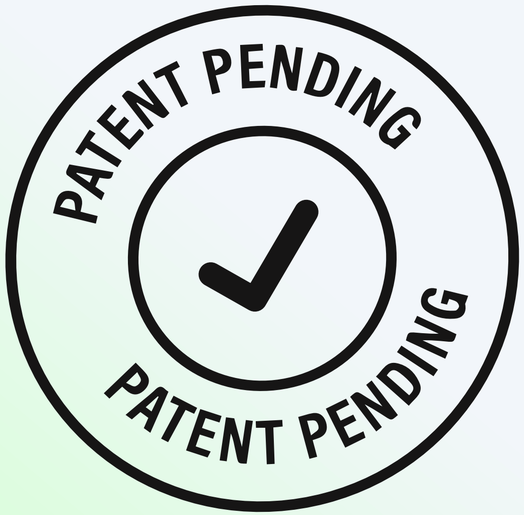


ThermoLoop™ – The Electrolyzer Killer



Development Plan





- Build a Benchtop Unit (Q2 2025)
- Build a Lab Demo Unit (2026)
- Build a Pilot Plant with a Partner (2027-2028)
- Begin Commercial Licensing (2028)

Our Company Team

David Lee, PhD
Chairman of the Board & President

35 years of experience in sustainable energy, software development, electronics, engineering, marketing, sales, and corporate management.

Steve Hill, MBA
Chief Executive Officer

Over 25 years of experience in biopharmaceutical and tech business development, sustainable energy, product launches, and market strategy.

Eric McFarland, PhD
Chief Technology Officer

UCSB professor, inventor, and energy technology expert with deep experience in catalysis, hydrogen production, and industry-academic collaboration. Former founder and CEO of multiple startups, with over 190 publications and 25 patents.

Sundar Narayanan
Director of Process Engineering

Chemical process engineering and scale-up expert with over 35 years of experience in process development, technology integration, and commercialization. former ExxonMobil senior technologist with a track record in energy efficiency, process automation, and advanced systems.

Ivor John, PhD
Senior Advisor

Environmental consultant, auditor and Ph.D. in Atmospheric Physics. Expert in air quality, climate change and the analysis of air emissions and greenhouse gasses.

Nirala Singh, PhD
Scientific Advisor

Expert in Electrocatalysts Development Associate Professor of Chemical Engineering, University of Michigan, Ann Arbor

The UCSB Technology Team

Phillip Christopher, PhD
Principal Investigator

Associate Professor of Chemical Engineering, University of California, Santa Barbara

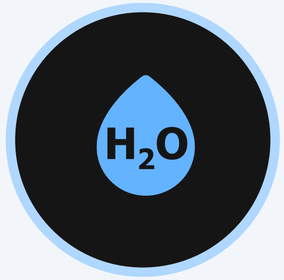
Justin Marlowe, PhD
Research Scientist

Ph.D. in Chemical Engineering University of California, Santa Barbara. Expert in multiple materials characterization techniques and reaction engineering

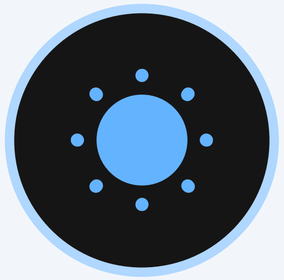
Yikyeom Kim, PhD
Research Scientist

Ph.D. in Chemical Engineering from the Korea Advanced Institute of Science and Technology (KAIST). Expert in the fabrication of tailored redox catalysts and system analysis of solid-gas reactions

A New and Better Way to Make Hydrogen



Use **inexpensive water** instead of natural gas



Use **inexpensive heat** instead of electricity

Small footprint for installation anywhere

Drop-in replacement for electrolyzers

24/7 industrial scale operation

The world's **cheapest green hydrogen**!

NewHydrogen

Thank you

www.newhydrogen.com

For more information, please reach out to us at:

info@newhydrogen.com