Opening Statement of Peter Johnson

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Introduction

Thank you Chairman Manchin, Ranking Member Barrasso, Senator Hickenlooper from Koloma's home state of Colorado, and other distinguished Members of the Committee for the opportunity to speak with you today and for your interest in geologic hydrogen and its potential to benefit the United States. Geologic hydrogen is a relatively new entrant in the hydrogen economy, so we especially appreciate your use of this committee's platform to educate policymakers and the broader public about geologic hydrogen. Your leadership and engagement now are of vital importance to advancing this new industry.

I'm Pete Johnson, co-founder and CEO of Koloma. I'm the father of four active kids and I love nothing more than spending time with my wife and them outside, enjoying the forests, mountains and coastlines of this beautiful country. I'm passionate about clean energy and believe I have a moral responsibility to do what I can to benefit the health of the planet. I'm a pragmatist, an engineer by training, and a clean energy entrepreneur by experience. I've founded and built multiple companies in this space, including another successful clean hydrogen business, and have also worked with a traditional energy firm to develop energy transition investment strategies.

Founding Story

I first learned about the concept of geologic hydrogen three years ago while working in the investment industry. I was skeptical. Everybody is looking for a silver bullet in the clean energy business, and this seemed too good to be true.

In the last twelve months, Science magazine, the New York Times, Wall Street Journal, Forbes[1], and other media have all highlighted this field and its potential; three years ago there was very little to go by. But I was intrigued with the potential and dug into as much data as I could find. It became clear to me that the science of hydrogen formation in the subsurface was real. A natural chemical reaction occurs when water contacts iron-rich rock below the surface of the earth and hydrogen is produced. This reaction is the source for many hydrogen seeps that have been well studied and documented on nearly every continent.

[1] "Hidden Hydrogen: Does Earth Hold Vast Stores of a Renewable, Carbon-Free Fuel?" by Eric Hand. *Science*. February 16, 2023. "It Could be a Vast Source of Clean Energy, Buried Deep Underground" by Liz Alderman, *New York Times*, December 4, 2023. "Underground Hydrogen could Supercharge Green Energy. First, Scientists have to Find It" by Eric Niiler. *Wall Street Journal.* June 5, 2023. "Forget Oil. New Wildcatters are Drilling for Limitless 'Geologic' Hydrogen" By Alan Ohnsman. *Forbes*. June 26, 2023.

I've worked in the hydrogen business for a long time and I did the math. If geologic hydrogen accumulations are discovered, this would change the hydrogen industry dramatically and provide a massive advantage in terms of cost and availability. It would open new avenues for decarbonization that aren't possible now. But key questions remained: are there accumulations that are big enough to matter? Are they close to markets? Can we find them through intentional, economic exploration efforts?

During this process, I was introduced to Dr. Tom Darrah, a tenured geology and geochemistry professor at the Ohio State University. Tom had spent the better part of twenty years collecting and analyzing geologic hydrogen data from six continents and is widely recognized as the world expert in the field. I saw that the analytical tools and technology that Tom had developed could be further honed to create a strong advantage in finding commercially relevant geologic hydrogen reserves in the US and abroad. We brought in other experts in resource exploration who agreed that the technical advantages we had would help de-risk the effort. At that point, Tom and I, along with another co-founder Paul Harraka, invested our personal capital alongside a seed investment and founded Koloma in 2021 as a data-driven, technology enhanced geologic hydrogen exploration company.

Today, Koloma has 35 employees who are a unique mix of geologists, data scientists, traditional energy resource professionals, lab technicians, and hydrogen experts. Koloma has teams in both Denver, Colorado and at our research facility at the Ohio State University. We've been actively gathering and analyzing data, conducting lab experiments, leasing mineral rights, and exploring in prospective regions within the United States. We're very excited about the potential we see to move geologic hydrogen forward as a true commercial low-carbon energy solution.

Geologic Hydrogen

As Members of this committee are well aware, clean hydrogen can play a vital role in addressing climate change by enabling decarbonization in transportation, agriculture, steel production, high-grade industrial heat, and more. Geologic hydrogen is poised to be a significant and important part of this new hydrogen economy.

I'd like to share a few key points about why I believe geologic hydrogen has the potential to dramatically advance the US's effort towards decarbonization:

First, geologic hydrogen is a form of domestic primary energy which will have 24/7/365 availability. All other forms of hydrogen involve the conversion of one form of energy into hydrogen, pulling energy out of the system and forcing us to collect even more. Geologic hydrogen will require far less energy to produce than it contains, adding energy into the system.

Second, geologic hydrogen has a near-zero carbon footprint, as confirmed by multiple third-party life cycle analyses and a peer-reviewed scientific journal article[2]. In addition, geologic hydrogen will result in lower land use and lower water consumption than any other form of hydrogen production. Geologic hydrogen is a critical tool in our toolbox and will help enable the clean energy transition.

[2] Brandt, A. "Greenhouse Gas Intensity of Natural Hydrogen Produced from Subsurface Geologic Accumulations." *Joule*. **2023**, *7*, 1818-1831.

Third, a growing geologic hydrogen industry will create new, domestic, high-paying blue and white collar jobs, particularly in rural communities where the resource is discovered. Some of the best technology and most talented technical people in our country come from the traditional energy industry. This is a great opportunity to leverage that massive talent advantage this country has developed. Downstream facilities converting the hydrogen into fertilizer, sustainable aviation fuel, and other necessary products will create additional jobs and bring economic prosperity to producing regions.

Our production methods source hydrogen in a clean, continuous, and cost-effective manner, eliminating the barriers that have historically hindered widespread adoption. We are actively engaged in exploration and are appraising assets that will play a significant role in domestic, and global, decarbonization efforts.

Sustainability

Koloma focuses on the sustainability of our hydrogen from a full life cycle perspective. Beyond geologic hydrogen's implicit attributes of low surface disruption, water need, and energy need, Koloma's strategy to maximize hydrogen climate benefits is three-pronged.

First, as a geologic hydrogen producer, Koloma produces clean hydrogen that is decoupled from natural gas. Hydrogen sourced from our wells contains small, if any, quantities of natural gas that are easily managed and sequestered onsite.

Second, Koloma will monitor fugitive emissions at all our production sites. This is not only important from an economic point of view (fugitive emissions reduce hydrogen production), but also from a safety point of view (fugitive hydrogen emissions pose a safety risk) as well as minimizing any impact on our climate and environment.

Finally, Koloma strategically selects our well sites to be in close proximity to potential hydrogen offtakers. It is clear from the scientific literature that transporting hydrogen long distances increases the potential of hydrogen leaks. By selecting well sites that are close to hydrogen offtakers, we minimize the distance for hydrogen transport and the chances for hydrogen to leak into the atmosphere. This also brings benefits to local economies as our hydrogen production will support the development of the rural hydrogen industry.

Koloma aims to produce cost competitive clean hydrogen and we believe geologic hydrogen has massive potential for decarbonization.

Safety

As a leading geologic hydrogen company, our responsibility and commitment to safety is paramount to everyone at Koloma. The bottom line is that we – both Koloma and our industry partners – must get safety right if we are to succeed as a company and in delivering on our promise of driving economic development, developing cost-effective clean hydrogen climate solutions, and supporting national energy security.

We are utilizing the best safety practices, which have been developed and proven through over a century of subsurface exploration and hydrogen industry development. Koloma is proactively working to apply and update those long standing hydrogen safety best practices to the newer geologic hydrogen industry by requiring specially-developed training specific to each employee or contractor's role, developing updated engineering systems, instituting multiple layers of defense against key risks, maintaining continuously monitored safety channels, and holding our vendors to the same standards.

We believe this is our responsibility to our employees, partners, and communities.

Best in class safety practices and outcomes are a crucial part of our social license to operate and it's our top priority.

Looking ahead – what's next

We are extremely optimistic about the future of the geologic hydrogen economy. We are at a key moment where the technology, the markets and the policy frameworks are coming together in way that can drive massive growth in geologic hydrogen and position the United States as the global leader in this sector.

We are grateful for recent key policies that have been enacted that support the hydrogen economy, most particularly, the Sec. 45V Hydrogen Production Tax Credit, which was included in last year's Inflation Reduction Act. That being said, we also believe the credit must be implemented in the technology neutral manner that was intended in order to support all hydrogen production methods, including geologic hydrogen.

As you know, just before the end of the year, the Treasury Department issued its draft regulations for this credit. "Geologic hydrogen" was mentioned several times in the guidance, reflecting the growing focus and importance of this energy source.

We agree with Congress's focus on ensuring that the credit must be 'technologically neutral,' which is to say that the policy was oriented around the amount of emissions reductions of a hydrogen production pathway, rather than around any specific technology or method. We strongly believe that as new hydrogen technologies continue to evolve and develop, new entrants must be allowed to efficiently utilize the credits as intended by Congress.

As outlined in our recently submitted comments, it is crucial that finalized guidance specifies the following:

1) The Provisional Emissions Rate (PER) process balances expediency and thoroughness and does not detract or diminish the urgency to develop a specific 45VH2-GREET pathway for geologic hydrogen. Furthermore, there should be a safe harbor provision for the CI scoring of facilities.
2) A Final Investment Decision (FID) should be specified as an appropriate measure of project maturity to commence the DOE's PER process for geologic hydrogen.

3) System expansion, the current emissions allocation process for co-products in 45VH2-GREET should be universally applied across hydrogen production technologies.

4) The definition of a “qualified clean hydrogen production facility” must clearly apply to a geologic hydrogen production well. Consistent with the law’s specification of “emissions through the point of production (well-to-gate),” the lifecycle greenhouse gas emissions should be determined at the Shared Facility level.

5) We are grateful for the thoughtful consideration that the departments of Treasury and Energy gave to geologic hydrogen and, as our sector matures, we look forward to continued work with the Departments of Energy and Treasury to advance the domestic clean hydrogen industry. While we are encouraged by aspects of the proposed regulations, we also believe there is still work to do.

Conclusion Chairman Manchin, Ranking Member Barrasso and Senators, thank you for the opportunity to be here today to share my perspective and views of geologic hydrogen. I’d like to conclude by noting that this will not be easy. This will take time, money, and effort to figure out. Nobody has all the answers today. But the early data looks very promising and I believe that geologic hydrogen can and will play a very large role as we work to decarbonize the US energy economy.

As you and your colleagues work to understand and develop policies to support this key sector of the hydrogen economy, I hope you will view me and the Koloma team as partners and as a resource to you. Again, thank you for inviting me here today and I look forward to your questions.