

Bateman positions Titusville-based GenH2 to tap growing hydrogen economy; invests \$35 million in headquarters renovation; educating public about hydrogen

By Ken Datzman

TITUSVILLE — GenH2, whose team includes former NASA researchers at Kennedy Space Center who have decades of experience in engineering and producing hydrogen solutions, has roared out of the startup gate taking a big step in short time, seeing early success.

The company is focused on the mass production of infrastructure equipment necessary for the transition to a clean energy economy. GenH2 technology will allow safe onsite production, storage, and distribution of pure liquid hydrogen, making the product accessible for everyday use.

Its innovative approaches include filling-station solutions and servicing systems to make clean hydrogen readily available on-site for a host of end-use applications.

“This has been my vision for more than 12 years, and now it is coming to light,” said businessman Cody Bateman, the founder and CEO of GenH2, whose company has its global headquarters here. “We’re focusing on one thing — the hydrogen economy. Within that scope, we are involved in everything from devices to education to the production of hydrogen stations.”

Building out the infrastructure of hydrogen fueling stations is necessary for market growth, and widely acknowledged as one of the challenges facing the sector.

Bateman says that today in the U.S., there are 150,000 gasoline stations, 500 electric vehicle power stations, and just 70 hydrogen filling stations.

“By utilizing a modular design that can be mass produced in our factory, we are planning to build more than 40 stations in 2024 and then build 100 stations per year thereafter.”

The first stations will be concentrated in California, where there is already significant support from local, state, and federal governments for hydrogen stations.

“There are tens of thousands of hydrogen stations that need to be built and they are being built one at a time. That’s what makes GenH2 unique. There are hydrogen-powered cars on the road today in California. There are hydrogen forklifts. There are companies building large hydrogen-powered Class A trucks, semis going up and down the interstate. Hydrogen is also used in fertilizer. Many people do not understand the part hydrogen plays in the world and in the economy.”

Bateman’s company also has offices in San Antonio, Texas, and White Sands, N.M.

Hydrogen is clean fuel that — when combined with oxygen in a fuel cell — produces electricity with water and heat as byproducts. Hydrogen can be produced from a variety of resources, such as natural gas, nuclear power, biomass, and renewable solar and wind power. These qualities make it an attractive fuel option and input for transportation, electricity generation, and industrial applications, such as in trucks, buildings and manufacturing.

The global hydrogen-generation market was valued at \$120.7 billion in 2020 and is expected to expand at a compound annual growth rate of 5.7 percent now through 2028, according to Grandview Research.

An exponential increase in the demand for clean and green fuel, coupled with the growing government regulations to control and curb the sulfur content in fuels, is expected to drive the market for hydrogen generation.

“GenH2 started out as a research and development



BBN photo — Adrienne B. Roth

Cody Bateman is the founder and CEO of Titusville-based GenH2, a leading developer of hydrogen infrastructure solutions and liquid hydrogen production. He says the hydrogen economy is taking off faster ‘than anyone anticipated.’ His company intends to be fully operational and producing liquid hydrogen and building filling stations by 2023. GenH2 is planning to launch an IPO within two years, primarily to ensure the large injection of capital necessary to build out infrastructure and manufacturing facilities on a mass scale.

group, and we will continue to do R&D. The second aspect of the company is education. Right now, people are just learning about the hydrogen economy,” said Bateman, a scientist who has founded several startups through the years and is widely recognized as a leader in the field of hydrogen infrastructure research and development.

He was a keynote speaker at the Dec. 13–16 “Business Transformation and Operational Excellence Summit” hosted at the Renaissance Orlando at SeaWorld. He presented “How Innovation and the Energy Economy is the New Future.”

“The biggest challenge facing the hydrogen economy is not the technology, it’s getting people to understand that hydrogen is safe, efficient, and is the fuel of the future,” he said. “We are always excited to address conferences

and help educate people on what we’re doing as an industry and as a company.”

Bateman earned his bachelor’s degree in computer science and electrical engineering from Texas A&M University and is an MBA graduate of Duke University’s Fuqua School of Business.

His career has been filled with excitement, starting as a teenager working for Apple Computer.

“I had the opportunity to work for Apple when I was 17 years old. I did some programming. I worked in Texas. I was writing code for the Apple II Plus and shipping the cassette tapes to their headquarters in California. That was 42 years ago. Back then, very few people even

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understood the need for computers. I have seen Apple grow. So, in 42 years we have gone from storing code on cassette tapes to now having powerful computers on our wrists and in our pockets.”

A report published by the International Energy Association — “The Future of Hydrogen: Seizing Today’s Opportunities” — finds that clean hydrogen is receiving strong support from governments and businesses around the world, with the “number of policies and projects expanding rapidly.”

Hydrogen can help tackle various critical energy challenges, including helping to store the variable output from the renewables like solar photovoltaic and wind, to better match demand. It offers ways to decarbonize a range of sectors — including long-haul transport, chemicals, and iron and steel. “The future is today. We can now do this,” said Bateman.

He said GenH2 is the only company currently manufacturing and distributing a new “Macroflash,” a test instrument being produced under a technology transfer license from NASA’s Kennedy Space Center.

The further development and manufacturing by GenH2 will follow more than a decade of internal research used in the space program by the company’s chief technology officer, James Fesmire, a renowned cryogenic engineer, scientist, and leading hydrogen technologies expert.

Fesmire is also the inventor of the Macroflash technology, which was carried out under the umbrella of the KSC Cryogenic Test Laboratory. Also known as “Cup Cryostat,” the compact instrument measures “thermal conductivity of materials or complex composites at below-ambient temperatures, or subjected to a large temperature difference,” said Bateman.

“The Macroflash, a small device, is probably the best tabletop thermal conductivity test device in the world, in my opinion. This test device allows layering. This is revolutionary in the field,” he added.

The South Dakota School of Mines & Technology in Rapid City is the first to receive the commercialized version of the Macroflash, which will be used in energy, transportation, construction, and environmental sectors. It will be employed for such applications as engineered systems, research testing, and quality control in manufacturing.

Other potential applications include electrical power and energy storage; refrigeration and cryogenics; aerospace and advanced materials construction; and ground and air transportation.

South Dakota School of Mines & Technology purchased the Macroflash device from GenH2. “We’re hoping to sell the device to not only companies, but also to advance a lot of universities as we start to mass produce it,” said Bateman. “By mass producing the Macroflash, industry and research institutions will have a practical tool for basic testing of common materials, or for research evaluation of advanced materials and systems.”

He added, “I believe it opens up everybody’s eyes to the true energy future. And that is what we care about. How do you get to the next stage with the hydrogen economy? Realistically, it all starts with research and development.”

Advances in new polymers and composites along with growing industrial needs are the impetus for the Macroflash development, said Bateman.

GenH2 recently announced its participation in a consortium of public, private, and academic experts led by Shell International Exploration and Production Inc., which is pioneering an ambitious path to enable large-scale liquid hydrogen storage for international

trade applications.

Bateman said this is largely an untapped field with potential for advancing the global commercialization of hydrogen as an accessible, affordable, and low-carbon energy commodity.

“We have a multi-year contract to work with Shell International Exploration and Production, the U.S. Department of Energy, NASA’s Kennedy Space Center, the University of Houston, and CB&I Storage Solutions to create the next advanced level of the hydrogen storage tank,” said Bateman.

The U.S. Department of Energy’s Hydrogen and Fuel Cell Technologies Office awarded the contract to demonstrate that a large-scale liquid hydrogen tank, with a capacity ranging from 20,000 to 100,000 cubic meters, is both feasible and cost-competitive at import and export terminals. The Department of Energy awarded \$6 million to finance the project and Shell and CB&I Storage will both provide an additional \$3 million each, for a total project fund of \$12 million.

As part of the project, GenH2 will design and manufacture one of the world’s most advanced thermal testing devices, known as “Cryostat-900.” NASA will work closely with GenH2 on novel testing development.

Earlier this year, GenH2 purchased the old Eckler’s Corvette property on South Washington Avenue. The property has been unoccupied since 2014.

GenH2 bought the property for \$6.4 million from Titusville Centroplex LLC. GenH2 is investing \$35 million in the redevelopment of the 10-acre property for its headquarters. The property will be expanded in phases and will contain more than 100,000 square feet.

“When we purchased the building, GenH2 wasn’t even one-year old,” said Bateman. “We believe in this company, and so do investment bankers. Even though the company is young, the concepts are not. The team has been working on this technology for more than two decades. And the great thing is, the technology has been proven. We’re going to be mass-producing it.”

The new campus will encompass an advanced research laboratory, light manufacturing center, educational and training classrooms for community engagement, an observation deck, and outdoor walking trails, in addition to offices and conference rooms for employees.

The GenH2 campus will also feature a hydrogen

technology visitor center and gallery, which will be open to the public. “We’re planning to have a whole education curriculum. We will be able to educate people, from adults to kindergartens, about hydrogen. We’ll have some great experiments,” he said.

Bateman said his team chose the City of Titusville for their new headquarters following a collaborative partnership between Rocket City Commercial, brokered by eXP Commercial, and the North Brevard Economic Development Zone. Phase one of the project is expected to be completed in early 2022.

GenH2 also worked with the Economic Development Commission of Florida’s Space Coast and with former Brevard County Commissioner Robin Fisher, among others.

“The Titusville community has been great to work with and they have been great to our employees,” said Bateman, whose company is hiring. In total, GenH2 expects to hire 400 employees in the next three years. Currently, about 45 people work for the firm. “We will be up to 60 to 70 employees by mid-to-late 2022, and then scale up from there.”

He said GenH2 is also planning to make an initial public offering of its stock. Bateman said the goal is to launch an IPO within two years, primarily to ensure the large injection of capital necessary to build out infrastructure and manufacturing facilities on a mass scale.

“We are working with a lot of big banks. There are not many hydrogen pure players in the market. We think our IPO will be very attractive when we launch it.”

This will be Bateman’s fourth involvement in taking a company public. He worked with Perot Systems Inc. when it went public in 1999. “I worked directly with the founder, Ross Perot, on that IPO.” And it was a big success, soaring on day one.

Next year, mid-term elections are on tap and there probably will be a lot of talk about the “Green New Deal.” The GND includes proposals that call for public policy to address climate change.

“We have been fortunate,” said Bateman. “The previous administration was very supportive of the work and research we were doing, and the current administration, obviously, is very supportive as well. We don’t play the Green New Deal card at all. In our business, we know the future of energy is hydrogen.”

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