

## As the Leading Manufacturer of Pure Hydrogen Generators for the demanding Mobile Telecom Markets, Hy9 is well positioned for Growth



**Gary Clarke**  
 President & CEO

### BIO:

Gary Clarke, President, CEO: 20 years' experience building and managing category leading technology companies. He has held senior operations, engineering and business development positions with, Wolfram |Alpha, Amazon Kindle, Netscape Communications, USinternetworking and Vignette. He has a PMD from Harvard Business School, BS in Sociology from the College of Charleston. Mr. Clarke honorably served in Army Special Operations (SOC /CAPOC) for nine years.

### About Hy9:

Hy9 is the leading manufacturer of pure hydrogen generators for refueling and mobile telecommunication markets.



**Clean Technology  
 Fuel Cell Systems**

**Interview conducted by:**  
 Lynn Fosse, Senior Editor  
 CEOCFO Magazine

**CEOCFO:** Mr. Clarke, Hy9 as indicated on your website is "making hydrogen pure and simple." Would you tell us more of what you do?

**Mr. Clarke:** Hy9 specializes in the design and manufacturing of pure hydrogen generators for the telecommunications backup and continuous power market segments.

**CEOCFO:** How are generators different for that need or are they?

**Mr. Clarke:** Mobile telecom is a very demanding market and fuel processors or hydrogen generators need to be reliable and robust. Our generators produce 99.9999% pure hydrogen, on demand and at the point of use. The purity of the hydrogen is essential to the life of the fuel cell. The ability to generate the hydrogen on-demand and at the point of use eliminates the complex logistics, drives out cost, minimizes waste and overcomes siting and storage issues.

**CEOCFO:** Would you explain how this works and what makes the purity of your system superior?

**Mr. Clarke:** We have designed a platform that incorporates over 40

years of combined experience in thermo-chemistry and purification technologies to develop a patented system for generating and purifying hydrogen. At its base, we use a steam reformation process to create a pressurized vapor that is hydrogen rich. The vapor is then passed through our purifiers and the result is a stream of hydrogen gas that is 99.9999% pure and available to PEM fuel cells to use as a fuel.

**CEOCFO:** What is it about your system that allows for the purity?

**Mr. Clarke:** The secret sauce is within the purification technologies that we have been working on since the 1990's. Specifically we utilize palladium in our purifiers because palladium is selectively permeable to hydrogen. Palladium lets hydrogen pass while effectively blocking all other gases and contaminants

**CEOCFO:** What is the competitive landscape look like?

**Mr. Clarke:** Competitively, we compete against existing technologies, primarily diesel generators. They are a very mature technology and familiar to people; they are also very dirty and expensive. Among other things, they are susceptible to heavy fuel theft. They are also susceptible to what is called community action, which is a polite way of saying vandalism. For instance, when a diesel generator comes on at twelve or one o'clock in the morning and starts waking up the family, some folks decide to go outside and make sure the generator is not making any more noise. In many emerging or developing countries, there is also a great deal of theft of the parts around the diesel generator, which all contributes to a

high cost of operations. In terms of direct competitors, there are a couple that are out there, but we believe we differentiate ourselves along a number of factors. Firstly, we are a platform architecture so we can provide a solution as a stand-alone system that can be deployed to replace a compressed hydrogen installations. We can be fully integrated into a rack-mounted cabinet as we are doing with our partner, Relion. We can supply the system to an OEM or system integrator for localization to a given geography or end-user. Finally, we are a flex fuel solution. We can use methanol or ammonia as a base fuel. We also differentiate on the basis of the purity of the hydrogen output and our ability to scale from as low as 1.5 kilowatts of power to over 5 kW. At the end of the day we offer the most flexible solution to meet the demands of both the fuel cell OEM's and the mobile operators.

**CEOCFO:** Do you reach out to telecoms directly, do you work through third parties, and would you explain the business model?

**Mr. Clarke:** Our business model is primarily indirect. We have a number of great partners, that include fuel cell OEMS and system integrators and we see them as force multipliers. We do work with telecommunication companies directly but we really work to enable our partners.

**CEOCFO:** Are there areas in the world that are most favorable or tend to be more receptive?

**Mr. Clarke:** There are very clearly areas that have adopted fuel cells much more readily than North America and that would be parts of Africa and Southeast Asia. Indonesia has several hundred fuel cells that are powering telecommunication sites. Areas with high subscriber growth,

poor or susceptible grid availability and those that are focused on lowering their operating expenses and carbon footprint are adopting fuel cells and specifically reformer based fuel cells.

**CEOCFO:** When you or one of your partners approaches a company, do they understand easily? When is the 'aha' moment?

**Mr. Clarke:** The 'aha' moment comes after their network operations group has run our system. Then they take the data they gathered and compare that with their actual costs of powering a site with diesel or how long their batteries actually run. Only they know

**Number one; our system opens new markets and domains of applications for fuel cells. The industry has been constrained by the lack a viable alternative to compressed hydrogen. Now they have it. Number two, our system lowers operating costs for mobile operators and that enhances their profitability. Third, we have a scalable platform and a product offering that can scale horizontally into other markets such as refueling for forklifts, tow motors and such. Number four, there are over 4.3M cell towers and base stations worldwide. A considerable amount of those will be open to reformer-based fuel cells. We plan to take a significant portion of that market. - Gary Clarke**

how much fuel is used and stolen, or how long the diesel generator last. Only they know how many times they have had to dispatch a field tech because the diesel generator failed to start. Once they compare the data, they have the big AHA moment! In fact we are in trials right now with an operator and we anticipate the 'aha' moment in the near future.

**CEOCFO:** What about the 'green' concept; is that somewhere on the backburner to other issues?

**Mr. Clarke:** In our case, it pays to go green. Green is still there and it remains important. What we offer is a way to be greener and to enhance profitability by lowering operating

costs associated with power generation.

**CEOCFO:** Does Hy9 have adequate funding to continue or will you need additional funding?

**Mr. Clarke:** We are presently seeking growth capital. We have a backlog of orders going into the second half of next year and we have great visibility through our partners on additional growth. As a result, our capital needs have grown as well.

**CEOCFO:** You personally have twenty plus years experience with technology companies, what have you learned that is useful for you today in Hy9 success?

**Mr. Clarke:** I draw a lot from my time in the military but also from philosophy. When you are dealing with emerging technologies and markets, I like to remember something I believe Voltaire said, "Doubt is an uncomfortable condition, but certainty is a ridiculous one."

**CEOCFO:** Why should the business and investment community pay attention to Hy9?

**Mr. Clarke:** Four reasons: Number one; our system opens new markets and domains of applications for fuel cells. The industry has been constrained by the lack a viable alternative to compressed hydrogen. Now they have it. Number two, our system lowers operating costs for mobile operators and that enhances their profitability. Third, we have a scalable platform and a product offering that can scale horizontally into other markets such as refueling for forklifts, tow motors and such. Number four, there are over 4.3M cell towers and base stations worldwide. A considerable amount of those will be open to reformer-based fuel cells. We plan to take a significant portion of that market.