



# Company Plans to Cleanse the Air while Growing Electricity, Fuel

**MARCH 4 - SAN DIEGO, CA** Grow Energy announced today that it is developing a new generation of energy-production systems which utilize algae to produce clean electricity, in a process that naturally cleans the air by consuming carbon dioxide. The company seeks to introduce a new low-cost alternative to other renewable technology, with the world's first renewable power solution that cleanses the environment of existing pollutants.

"We're very excited to announce Hydral, our new line of algal fuel cell systems," said John Walsh, co-founder and Chief Executive Officer of Grow Energy. "We believe with the resurgence of hydrogen fuel cell technology in the market today and its continued growth in the future, Hydral offers a unique and cost-effective solution to consumers and urban markets, who not only require standard electricity, but need affordable and easy access to hydrogen fuel for upcoming fuel cell vehicles."

In comparison to Grow's first product line, Verde, which utilizes a combustion process to generate energy from algae, Hydral is a significantly more simplified system that uses modified algae strains to naturally produce hydrogen gas, in a process that could almost be described as photosynthesis. Hydral's algae grows by consuming carbon dioxide from the air, and due to its genetically modified characteristics, produces hydrogen instead of oxygen in its natural life cycle. The hydrogen produced is collected, stored, and made available to fuel compatible vehicles, as well as in Hydral's own fuel cell(s) to generate electricity and thermal heat energy for stationary use.

"Although Hydral is still in development, and while we expect it to be more expensive than our Verde systems initially, it represents a significant breakthrough in the progression and availability of hydrogen fuel cell technology in many applications," said Kevin Segal, co-founder and Chief Operating Officer of Grow Energy. "Hydrogen, at least in my eyes, is the future of clean energy. The problem today is that it's not necessarily affordable or efficient to produce it in mass quantity. Grow's technology makes it possible to produce hydrogen naturally, and at near zero operating cost. By harnessing it, we're generating our power and fueling our cars with the fuel of stars, and I feel like that's a relatively safe bet."

Hydral's bioreactors, the apparatuses that algae will grow in, will be available in tube and panel form. Designed initially for use in large properties and high-density structures, Hydral can complement modern, LEED-certified architectural design with a dramatic and functional new style for structural envelopes and rooftops. It can also be hidden from view within sleek outdoor or indoor casing, to complement more traditional building styles.



These bioreactors have been built to maximize the growth potential and efficiency of algae. It may be possible to power an entire building with only 35% of its building envelope covered in thin bioreactors.

Hydral is not only a solution for energy production. Where applicable, the system will be able to connect and filter a building's water supply, effectively treating waste water and delivering fresh drinking water and irrigation to a structure's inhabitants and surroundings.

Hydrogen fuel cells have been long regarded as one of the best possible solutions for energy production. Highly efficient, compact, and virtually pollution-free, this technology outperforms nearly all other power generation methods. Grow's technology is among the first to be able to generate hydrogen cheaply, naturally, and in a scalable format, complementing and eliminating operating costs of existing stationary fuel cell technologies, which currently rely on natural gas for hydrogen production.

This revolutionary technology is gaining momentum, and fuel cells continue to drop in price. Today, UK-based ACAL Energy announced it has successfully developed the world's first low-cost and high performance fuel cell. On February 26, 2013, Hyundai Motor Company announced that it has become the first automobile manufacturer to mass produce hydrogen fuel cell vehicles, and plans to have the first cars hit European roads in early March. Earlier this year, a consortium of auto manufacturers, including Toyota, BMW, Daimler, Ford, and Nissan, announced plans to release affordable fuel cell-powered vehicles to consumers within the next 5 to 10 years. Stationary fuel cell manufacturers, such as ClearEdge Power and Bloom Energy, have pioneered and begun sales of the first fuel cell technologies for smaller properties, such as residences and small businesses. Larger fuel cell manufacturers, such as Ballard Power Systems and FuelCell Energy, are making power-utility energy generation more reliable, efficient, and extraordinarily clean.

Hydral will initially be made available to new real estate development projects and large scale properties. Grow Energy says it is in private discussions with several of property developers who plan to include Hydral's technology in new destinations and buildings scheduled to open over the next 7 years. Grow also is said to have plans to open algae refueling stations for vehicles, and is experimenting with Hydral's technology in a power-utility format.

"With the continuing decline in cost for fuel cell technology, we hope to deliver affordable algae-hydrogen energy systems for use by individual homes and small businesses within 5-7 years," Benoit Degrenne, Chief Science Officer of Grow Energy said. "The future Hydral systems will be complete solutions for average sized properties, capable of making a property fully self-sustaining for its power needs, at an expected variable retail price of only \$25,000 to \$35,000. Hydral's eventual systems for smaller properties will come with the miniaturization and compression of our photobioreactor technology, where less space will be needed for algae growth than in present day."



Grow Energy was founded by high school friends John Walsh and Kevin Segal from Redondo Beach, CA. The company's team includes Dr. Benoit Degrenne, an accomplished bioprocess engineer with nearly 10 years of algal bioengineering and photobioreactor design, biofuel and alternative energy activist Josh Tickell, and founder of EcoUsable Joey Mendelsohn.

Hydral systems are expected to require roughly 20-40% of a building's envelope, or the volume equivalent of indoor/hidden bioreactors, to produce enough energy to satisfy the building's total energy needs, with significant energy and hydrogen fuel left over for other uses, including being sold back to a utility provider for a profit and providing fuel for compatible vehicles.

Grow is currently in discussion with a number of fuel cell manufacturers to exclusively supply technology elements for the Hydral system. The company plans to make custom Hydral installations publicly available for mid-size to large-scale properties and communities in 2015.

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