



[| Archives](#) | [| Charts](#) | [| Companies/Links](#) | [| Conferences](#) | [| How A Fuel Cell Works](#) | [| Patents](#) | [| Types of Fuel Cells](#) | [| The Basics](#) | [| Fuel Cell News](#) | [| Basics on Hydrogen](#) | [| Search](#) |

Try It Free

* Stay Updated every week With a Free Subscription To "[Inside The Industry](#)" As Well as a Weekly Updated Patents Page

Can Green (Energy) Beget Green (\$)?

Publication Date: 06-June-2005

02:40 PM US Eastern Timezone

Source: Registered Representative After announcing General Electric's company-wide push into so-called green technologies in May, Jeffrey Immelt, the company's CEO, stressed that the move is not part of some save-the-planet idealism.

Rather, he said, GE's "Ecomagination" initiative is driven by profit, plain and simple. "With oil at \$55 [a barrel], you have to root for me," the Financial Times quoted him as adding.

This is the perhaps the highest profile example of why next-generation energy companies — those that generate power with little or no environmental impact — are likely to provide investors a "long-tailed secular growth opportunity," according to Greg Curhan, managing director at Merriman Curhan & Ford.

The San Francisco-based investment bank, which specializes in fast-growing companies, foresees compound annual growth of about 24 percent over the next decade for companies that produce green technologies, like solar-photovoltaics, hybrid electric vehicles and hydrogen fuel cells.

Why Go Green?

Rising oil prices have brought energy efficiency to the fore, and green energy technology tends to be very efficient. Brion Tanous, a process engineer who worked on the space shuttle's fuel cells and now tracks next-generation energy for Merriman, points out that coal-fired power plants generate electricity at 34 percent efficiency and internal combustion engines at 15 percent. By contrast fuel cells — battery-like devices, which produce electricity, generate zero pollution and are 100 percent silent — are between 60 percent and 80 percent efficient.

It's telling that even the oil-heavy American Stock Exchange has given a nod to the rising importance of green energy, introducing the PowerShares WilderHill Clean Energy Index in March.

Consumers, too, are warming to the green technologies — particularly in cars. According to automobile researcher R. L. Polk, there were 83,000 hybrid vehicles on the road in 2004 — 81 percent more than in 2003. Toyota recently increased the production rate of the Prius, its hybrid-electric, to 180,000 vehicles per year, and Honda now offers three hybrids. Hybrids combine a gasoline engine and electric motor and represent a "critical transition phase" to a yet-cleaner future of fuel cell vehicles, of which

there are still few (only about 400) at present. Still, Tanous notes, hybrid technology is about 75 percent transferable to fuel cell vehicles.

"You're only replacing the gas engine with a fuel cell," he said. "All of the electrical propulsion used in the hybrid, i.e., electric motors and the digital power management, gets used in the fuel cell vehicle."

For this reason, fuel cell transition technologies are a key growth area. Another is solar cells, which are photovoltaic (PV) cells made of semiconductor materials that produce electricity. According to the U.S.

Department of Energy, costs of solar technology have declined by 80 percent over the past two decades, while the PV market has grown over 30 percent each of the past five years, claims Clean Edge research. A bill pending in California ("The Million Solar Roofs" bill, SB 1) proffers 10 years of incentives to stimulate the installation of solar energy systems in a state that is already the world's third-largest market for solar power, behind Japan and Germany.

Full of Gas

There has been a lot of talk about hydrogen's potential as a clean energy fuel for the masses. Hydrogen makes a nice buzzword and will eventually provide a zero-pollution fuel option for cars, but this may take some time.

"Despite all the talk about retail hydrogen fueling stations, you still can't drive up to the pump and buy hydrogen," notes Rich Piellisch, editor of Fleet Fuels, a journal that tracks alternative fuels.

Currently, hydrogen costs over three times as much to produce as gasoline. An added worry is environmental, since producing hydrogen requires lots of energy, and much water besides, if produced by hydrolysis. For these reasons, we are still producing demonstration vehicles. Next year New York City will receive 13 fuel cell vehicles from GM and its first hydrogen service station from Shell Hydrogen. Traction might come in as few as five years.

"We could see 5,000 fuel cell vehicles on the road by 2010. In my mind that's the beginning," says Tanous. "The hybrid was launched in Japan in 2000 and sales took off pretty quickly after that first year, so you're basically waiting four-and-a-half years for the industry to get interesting."

Future-oriented investors willing to accept the risk of early-stage investing should consider taking positions in hybrid and solar photovoltaics companies with scalable technologies. One is Quantum Fuel System Technologies, which provides fueling systems for gasoline alternatives, like natural gas and propane, as well as for hydrogen fuel cell vehicles. Quantum helps convert hybrid gasoline vehicles to run on hydrogen by providing systems to make that happen.

"We store the hydrogen on board the car and deliver it to the engine," says a Quantum spokesperson. "We make everything that fuels fuel cells except the fuel cell itself." Though GM owns 15 percent of Quantum and is its the largest customer, Ford, Hyundai and hybrid-vehicle biggie Toyota also are clients. Tanous believes that either Toyota or GM might go to production ahead of schedule, though even without factoring that surprise, Quantum is growing quickly. Management forecasts revenues of \$250 million for fiscal 2006, ending April, representing growth of 25 percent. Tanous, who rates shares a buy, forecasts EPS of 9 cents for fiscal 2006, rising to 28 cents in 2007. Tanous values shares at \$10 to \$12 based on a multiple of 2.5 times 2007 sales.

"Quantum's doing really well even though the stock is being punished as negative spillover from all of GM's woes," he said. "Fuel cell development by the big guys is at an all time high, but the perception of Quantum is only about GM."

Alternative Picks

Ballard Power is considered the leading non-automotive company involved in fuel cell development. Says CEO Dennis Campbell: "We know as well as anyone what is happening at the molecular level in fuel cells." Ballard supplies eight top 10 automakers with fuel cell products, and Ballard-powered buses run in 10 cities, including Perth and Santa Clara. To make fuel cell development more transparent, in March, Campbell set down a "road map" toward commercial equivalence with gasoline engines, an engineering shootout that draws comparisons in freeze starts, durability and, most critically, cost reductions. The deadline is 2010.

Ballard generated \$81 million in revenues in 2004 and maintains an industry-leading cash position of \$284 million. On the negative side, Ballard has been a consistently unprofitable cash burner, spending \$85 million in cash in 2004 alone. Shares trade under book value, and might shrink further, given the amount still needed — over \$150 million — for volume production. Tanous rates Ballard shares a neutral.

"Our conclusion is that Ballard will gain significant share of the auto fuel cell market, but there's no urgency to buy the shares today," he said. "That said, early can be a powerful position."

Energy Conversion Devices offers a portfolio of clean energy technologies and participates in two rapidly growing markets, photovoltaics, a 30 percent CAGR segment, and hybrid vehicles, a 39 percent CAGR segment. The company owns Uni-Solar, which provides thin-film amorphous silicon solar cells for roofing and has grown by 70 percent over the past year. Uni-Solar is selling everything it makes and has \$80 million worth of back-orders.

Energy Conversion is also set to sell nickel metal hydride (NiMH) battery packs into the rapidly growing hybrid market through its 50 percent ownership of Cobasys (ChevronTexaco Ovonic Battery Systems). Tanous, whose firm does banking for Energy Conversion, sees potential "to dominate the hybrid-electric battery market," though the firm has ample competition from Panasonic and Sanyo.

A third business is Ovonic Unified Memory (OUM), a technology designed to replace flash memory that is supported by STMicroelectronics and Intel and 41.7 percent owned by Energy Conversion. Though Jefferies Group analyst Jeffrey Bencik points out that energy conversion is not yet profitable and believes shares are fully valued at present, Tanous is nonetheless bullish. Energy Conversion expanded its revenue by 8 percent in the most recent quarter, but still lost 39 cents per share. Management is shooting for "sustained profitability" by July 2006.

The analyst offers this "sum of the parts" valuation: "In photovoltaics, comparable company Evergreen Solar trades between three to five times sales on enterprise value. If you apply that here, you get \$10 per share," he says. "The battery business is based on a royalty stream from Sanyo and other licensees and worth \$20 to \$30 per share."

The third piece of the pie is OUM technology, a wild card that could be worth anywhere from \$10 to \$30. "Do the math," Tanous urges, "and you get to the mid-\$40's without any trouble."

A compelling argument, if one that requires some forward thinking and faith.

Green Machines

Makers of environmentally friendly technologies that are poised for a stock-price bump.

Company	Ticker	52-Week High/ Low	Market Cap	Enterprise Value	Book Value
Energy Conversion Devices	ENER	\$26/\$10	\$730 million	4.7 times	\$3.14
Quantum Fuel Systems Technologies Worldwide	QTWW	\$8/\$3	\$195 million	5.4 times	\$2.80
Ballard Power	BLDP	\$10/\$3.60	\$430 million	2.2 times	\$4.97



© 1999 - 2005 FuelCellWorks.com All Rights Reserved.

