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Battery developers are white-hot commodities in Detroit

By Chris Woodyard
USA TODAY

ORION, Mich. — The new rock stars of the auto industry aren't producing the quickest sports coupes or the sleekest sedans.

They are the handful of high-tech companies racing to develop a new breed of a historically unsexy product, the battery, that is revolutionizing the way that vehicles work.

One of them is Cobasys, located in this Detroit suburb. The company makes batteries that power today's gas-electric hybrid vehicles, such as the Saturn Vue. But it is also jointly developing the next wave of batteries, those that will be needed for plug-in hybrids, which can recharge overnight from a wall socket.

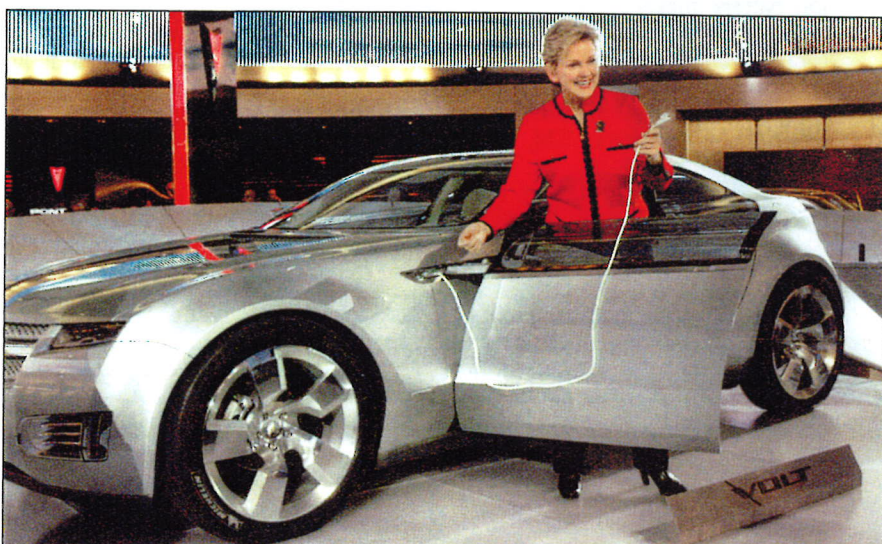
"This is one of the bright spots in the auto industry today," says Cobasys CEO Thomas Neslage.

Unlike most automakers, some of the battery makers have a distinctly high-tech sheen. They're growing fast in a field where technology advances by the day, making products that are a leap beyond the lead-acid batteries that have started cars and trucks for decades. And their customers are begging for more.

Cobasys' focus has been on making the nickel-metal hydride batteries that are the mainstay of most hybrids. They provide enough juice to power vehicles at slower speeds, allow the car's internal-combustion engines to shut off at intersections, and are partially recharged when a car's brakes are applied.

But many see the holy grail as the lithium-ion battery, technology that powers many personal electronic devices and will make plug-in hybrids practical.

Research is focused on making battery packs for cars that would be compact, dependable and cheap. They also must be durable: Automakers want them to last at least 10 years before they need to be replaced.



By Paul Sancya, AP

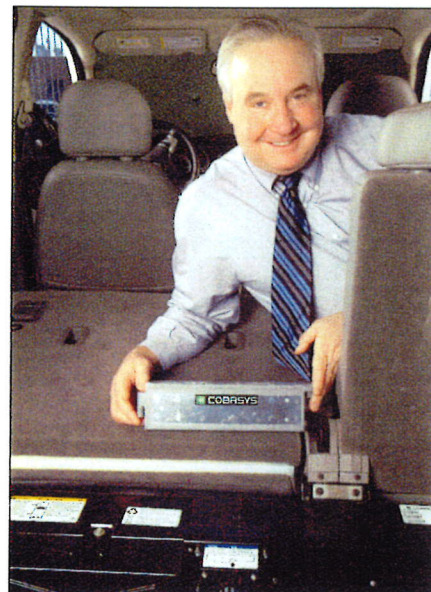
Chevy Volt: Michigan Gov. Jennifer Granholm holds a plug for the concept vehicle. It can travel up to 40 miles on an overnight charge.

It's that promise that's making high-tech battery makers into industry darlings, at least in the eyes of:

► **Clamoring automakers.** Two weeks ago, General Motors rolled out the hit of the North American International Auto Show in Detroit, a plug-in hybrid concept car called the Chevrolet Volt. The car was billed as being able to travel up to 40 miles on an overnight charge, more than the nation's average daily commuting distance, before needing its gasoline engine.

But GM was quick to add that the decision on whether to build the Volt rests entirely on whether battery technology advances. GM is pitting Cobasys and another battery maker, A123Systems, against the team of Johnson Controls and Saft Advanced Power Solutions in developing lithium-ion power for the next-generation Saturn Vue, a plug-in hybrid which could be the forerunner to a production Volt.

Other automakers are in the race as well. DaimlerChrysler is placing 20 Dodge



By Santa Fabio for USA TODAY

Cobasys: CEO Thomas Neslage holds one of the six batteries in the 2007 Saturn Vue Greenline.

Sprinter vans with plug-in hybrid systems into corporate or government fleets through next year. Ford Motor has built a prototype plug-in hybrid version of its Edge crossover SUV that also has a hydrogen fuel cell. Toyota has said it's developing its own plug-in hybrid.

► **Supportive government.** For the second consecutive year, President Bush, in his State of the Union address Tuesday, cited the development of plug-in hybrids as an important budding solution to weaning the USA off imported oil.

Government is kicking in. Two lithium-ion battery makers, A123 and Detroit's Compact Power, recently won grants totaling \$21.3 million from the U.S. Advanced Battery Consortium, a partially government-funded research group for Detroit's automakers, GM, Ford and Chrysler Group.

► **Anxious investors.** The money is flowing. A123 announced Thursday that it has received another \$40 million in private financing, bringing total investment so far to \$102 million. The fast-growing Watertown, Mass., company is thinking of an initial public offering when it deems the time to be right. "It shocked the battery world that a start-up could create game-changing technology and launch it

in such a short period of time," A123 CEO David Vieau says.

Cobasys says parent Chevron, which has joint ownership with Energy Conversion Devices, has invested \$230 million so far. Cobasys has grown from 34 employees five years ago to nearly 400 today.

Compact Power hasn't been hurting for attention, either. "There is heightened interest from equity groups wanting to participate," CEO Prabhakar Patil says.

Of course, there are risks. Like any emerging technology, the race to find the best solution may turn out to be an unorthodox approach. Silicon Valley start-up Tesla Motors is bundling 6,831 rechargeable lithium-ion batteries, like the ones used in laptop computers, as the heart of the \$92,000 electric roadster it expects to start delivering next year.

Tesla says the plug-in car should go from 0 to 60 mph in about 4 seconds. Its charge will last up to 250 miles of driving, the company promises.

But that's in the future. Even with today's technology, Cobasys is trying to keep up with demand for nickel-metal hydride batteries. Its headquarters here is supposed to be mostly a development facility, but demand is so high that it's

being used for production while a new factory in Springboro, Ohio, ramps up.

The company makes about 400,000 cells a year, the Lego-like plastic-covered rectangles about the size of a carton of cigarettes that are literally the building blocks of a hybrid battery. It hopes to increase production to 3 million by 2009. The number of these cells that go into a hybrid battery varies. When 24 are packaged together, they produce a wallop equal to a 120-horsepower gas engine over a five- to 10-second burst. "Think of the battery as a fuel tank," Neslage says.

The tricky part is getting all those cells to work together as a single unit. That's Cobasys' specialty — and the role it's playing in its partnership with A123 focused on the lithium-ion batteries. A123 makes battery packs for Black and Decker power tools at present.

Besides cars, Cobasys' units are being tested in delivery vans and military haulers. And Neslage hopes to crack the market for buses and trash trucks as well, stop-and-go vehicles that lend themselves to the advantages of hybrids.

And someday, if everything works out, maybe GM's plug-in hybrid models as well.