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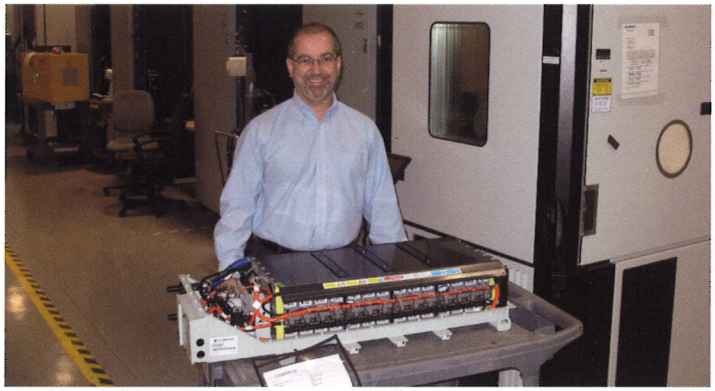
Series hybrid runs mainly on lithium ion battery



Scott Lindholm says Cobasys' development work with General Motors should provide a clearer picture of the future of lithium ion batteries in automobiles.

With two hybrids launched and two more coming this year, General Motors is turning up the voltage on its plans to electrify future powertrains.

GM recently announced a production plug-in version of the Saturn Vue as well as the Chevrolet Volt concept, a series hybrid that uses a gasoline engine to recharge a lithium ion battery pack. The lightweight batteries are common in consumer electronics. In the auto industry, the batteries are more expensive than nickel-metal hydride batteries, but they have higher voltage and more energy density.

GM Vice Chairman Bob Lutz says the Volt stands a good chance at making production around 2010 — if lithium ion battery technology continues to evolve. GM has awarded two development contracts to battery suppliers. One went to Cobasys LLC, the supplier on the Saturn Aura hybrid. Cobasys and a partner, A123Systems, best known for making the lithium ion batteries for Black & Decker power tools, are working on the GM contract. Scott Lindholm, vice president for systems engineering at Cobasys, spoke with Staff Reporter Richard Truett at the Detroit auto show.

Cobasys is set up to manufacture nickel-metal hydride batteries, and A123Systems makes lithium batteries. How will the two companies work together on the GM contract?

A123 is the cell supplier. We are using their lithium ion phosphate technology. They are a very good company with very good technology. GM evaluated them as well. But they don't have integration experience. We do. So, we thought it was a logical fit. If we need to evaluate lithium in a full systems solution, with our systems capability and their battery technology, we would come together in a partnership.

So will A123 manufacture the batteries, and you'll assemble them into ready-to-install packs?

We are still talking about that. But, obviously, they are the cell producer, and they are already in high volume production in China with plans for expansion. Our business is integration. We can integrate any (battery) technology.

In speaking with some of GM's hybrid engineers, I get the impression that GM will design the batteries and choose the internal chemistry and then just hire companies to build the batteries to GM specs. Is that correct?

I am not sure GM is going to come up with the specs for the chemistry. They are going to develop the performance and (durability) requirement specs. The chemistry is really sort of an immaterial thing as long as the batteries perform safely and effectively. Depending on the car, whether it is the Chevrolet Volt or some other configuration of electric drive ... GM will come up with the performance spec, and it will be our job to meet it.

Will lithium ion batteries replace nickel-metal in all hybrids?

Not necessarily. It's all going to boil down to cost, performance, packaging issues and what's available at the time. Some applications, certainly, will prefer lithium because of its energy and power density. And in a lot of applications nickel-metal hydride will be perfectly acceptable. Nickel-metal hydride is here now. It works. It's safe. It's reliable. But, on this program, GM is stretching out and wants to look at lithium as being an answer for a plug-in hybrid.

Will lithium ion batteries be produced in North America? Or are they going to be like any other commodity and be sourced from the lowest-cost country?

There are reasons for sourcing them in North America, such as security. But that's something the market is going to have to sort out. I am not a good predictor of that. But, obviously, from a cost standpoint, producing them in the Far East and China is pretty attractive.

Realistically, what's your best guess when lithium ion batteries will be ready for hybrid vehicles?

I wish I knew. The best answer I can give you is that after we do this development program with GM and really have a look at packaging up the system for a vehicle, we'll have a much better idea whether it will work and if it is safe. Obviously, no one is going to put out a product that is not safe.

COBASYS