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Canadian battery maker looking to electric cars



MICHAEL VAUGHAN
mvaughan@globeandmail.com

Stricter emissions regulations have forced all auto makers to start planning electric cars, and progress in battery development may make them feasible.

The technology they're counting on is lithium-ion batteries. Carlos Ghosn, chief executive officer of Renault and Nissan, has been quoted as saying, "When the lithium-ion battery is ready, you get the car."

All the big auto makers are choosing battery-making partners, but there's a Canadian company with some promising Li-ion technology that's still on the outside looking in.

They haven't signed up any big car companies, so to show what they can do Electrovaya, based in Mississauga, is launching the Maya-300, a low-speed electric vehicle.

It will have a range of up to 120 miles on a single charge, powered by Electrovaya's Lithium-ion SuperPolymer battery. The on-board battery charger works from standard 110V outlets.

More than a glorified golf-cart, the Maya-300 is a zero-emissions electric car with a regulated top speed of 25 to 35 mph.

Until states and provinces allow them on the road, they'll be limited to gated communities, office and college campuses and so on.

Electrovaya's batteries are modular and can be moulded to fit into whatever space is available in a small car. Other battery makers produce traditional cylindrical Li-ion batteries that must be wired up in bunches.

Sankar Das Gupta is chairman and CEO of Electrovaya Inc.

VAUGHAN: You obviously be-



Sankar Das Gupta is CEO of Electrovaya, which is developing the Maya-300, a zero emissions car, to show the potential of its Lithium-ion SuperPolymer battery (pictured in his hand). YVONNE BERG FOR THE GLOBE AND MAIL

lieve that electric cars will be coming to the market soon.

DAS GUPTA: I was recently at Silicon Valley for a meeting to give a talk on electric vehicles. Kleiner Perkins [a venture capital firm] was there, Segway was there - the amount of interest in investing in electric vehicles is so high.

They had a survey that showed that more than a million hybrids have been bought by North Americans, but 60 to 80 per cent of the people who bought the hybrids thought they were buying an electric car. The buyers were quite surprised to find that 100 per cent of the input energy is from gasoline and they didn't realize it.

So if there was an electric car available, people would buy it.

At present there's none available except for GEM (Global Electric Motorcars) and Zenn (Zero Emission No Noise) and

a few other low-speed vehicles and they're all running with lead-acid batteries.

They don't run very well in winter and they don't get the range.

So I think the demand is there, but the supply is missing.

Maybe gas-electric hybrids are standing in the way of electric cars.

It's an emerging business. Currently there is no lithium-ion batteries to my knowledge in full-scale production. All the hybrid vehicles are using something called nickel-metal hydrate and nickel-metal hydrate is a mature business.

There is a change taking place where people may come up with lithium-ion batteries for the hybrid market.

But the battery used for a hybrid is not very large - about

900 watt hours, which is about half the capacity of ours.

So we are hoping the world is going to move to an electric drive, which is either a plug-in hybrid or a full battery-electric.

And there, small size and small weight becomes a compelling reason to use ours.

Small size and weight - is that what's special about your batteries?

We've got a great battery and the interesting thing about this technology is that it keeps improving.

The battery is perfect for transportation applications because you can make it in any size - you can make large batteries easily with it.

It has a beautiful high energy density so the range is there.

And it's got excellent power so you can accelerate and when you brake it can take the re-gen power back in.

I think we've got a unique combination of energy and power.

Don't yours overheat and blow up?

The first-generation lithium-ion batteries used something called lithium-cobalt oxide as a positive electrode. But lithium-cobalt oxide had a propensity to have a thermal runaway.

Now it's still used in small cells, but in big cells I don't know anyone who is still using lithium-cobalt oxide; instead they're using all kinds of newer materials.

So the thermal runaway problem is much less today than it used to be three years ago for large cells.

The second thing about lithium-ion batteries is that you have to be able to manufacture large cells to be able to go after large applications.

You cannot take a whole bunch of small cells and make a large battery out of it.

And Electrovaya is unique because we can make large batteries without any tooling changes. You need the energy and you need the power and our cells give you both.

I heard Bob Lutz at GM say it's still a horse race over who will supply batteries for the Volt; but I didn't hear Electrovaya even mentioned.

We are trying to change that and I think we have enough large-scale projects under way that people are getting to know us.

Some of the other battery manufacturers are doing a tremendous job of marketing and we are finding their potential clients are finding us because our cell is smaller, lighter.

Give me a little history of Electrovaya.

We've been playing with lithium-ion batteries for quite some time.

We were initially partnered with the National Research Council and we had some programs with Argonne National Lab. This is a home-grown technology and we've come a long way.

We raised some funds through an IPO in November, 2000, and we have some smaller products out there like a power-pack external battery for computers.

We are slowing down our engineering service program for companies and governments and are now focusing on our core business, which is batteries for transportation.

Michael Vaughan is co-host with Jeremy Cato of Car/Business, which appears Fridays at 8 p.m. on Business News Network and Saturdays at 2 p.m. on CTV.

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