Supercapacitors May Replace Batteries

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MONTREAL, Dec. 16, 2014 (GLOBE NEWSWIRE) -- Reliable energy storage is one of the biggest obstacles for Electric Vehicles and Smart Phones. With 1 billion mobile phones sold every year - and most of them running out of juice by noon - this is big news.

Lomiko Metals (TSX-V:LMR) (OTCQX:LMRMF) (Frankfurt:DH8B) worked with Stony Brook University and Graphene Laboratories on a proto-type graphene supercapacitor to solve that energy storage problem in 2013. Now, they have formed a new company called Graphene Energy Storage Devices Corp to bring that proto-type to commercialization for EVs, smart phones.

"What is completely unique about us," stated Lomiko CEO Paul Gill in an exclusive interview with Financial Press, "is that we're building links to each part of the chain. We invested in Graphene 3D Labs (TSX-V:GGG) and they are developing the 3D-printable graphene battery, Graphene ESD is developing a graphene super capacitor. Lomiko has licensed and will produce a power converter, and we are exploring graphite resource assets in Quebec which will provide the raw materials for conversion into graphene."

The properties of graphene, including its conductivity, mechanical strength, and high specific surface area, make it an ideal electrode material for electrochemical devices uses such as supercapacitors and next-generation Li-ion batteries.

Energy storage solutions have not kept up with the current rate of electronic component evolution. Conventional batteries store a substantial amount of energy, but they are large, heavy and slow to release and charge.

The Tesla Model S is a case in point. It can go three hundred miles on one charge but it takes more than 24 hours to re-charge using a standard 120v wall socket. The slow recharge time is a barrier to wider consumer adoption. Capacitors charge and release energy quickly, but they hold less energy than a battery.

Supercapacitors appear to be the answer to future mobile energy storage needs.

They hold 10,000% more electrical charge than a standard capacitor and they work at very low temperatures. The only problem right now is that they aren't cheap. Graphene supercapacitors could change that.

"The demand for energy-efficient electronic devices is surging," stated Gill, "with the advent of re-chargeable batteries and the new market for quick-charge supercapacitors, Lomiko is moving into a growing market with a profitable business model."

Gill explains that a supercapacitor is a high power version of a battery that holds high density energy. Graphene technology may prove to be the magic bullet for affordable energy storage, with fast charge and discharge rates.

Current supercapacitors can store about 150 Farads of energy per gram. The upper limit for graphene-based supercapacitors is 400% higher. As well as being lightweight and compact, graphene based supercapacitors have the potential to be produced cheaply.

"A quick charging retail supercapacitor will solve your energy storage needs," stated Gill, "and we can design them for cars, golf carts, any application. You'll no longer have to plug things in and sit around while they charge. Just plug and go - that's the ultimate freedom – not having to worry about your mobile devices

going dead."

While exploring the graphene supercapacitor opportunity, Lomiko is working on another front to create revenue.

"We currently have a power converter product-line which is expected to produce short term cash flow," confirmed Gill. "First, there is a power converter that will go into a ballast for a fluorescent or LED lighting system we are producing. Second, there is a unit which will turn our 120v AC/DC plug into a charging station with 6 USB ports for recharging laptops, smartphones and tablets for e-commerce sales. Thirdly, we have a 60 Watt LED driver. Powerconverters are not the sexiest product. But anything you plug into a wall plug has to have one. It's a trillion dollar business and we want to be in it."

Gill has an order from a core customer for 5,000 units per month starting in February, 2015. In parallel with its sales plans and new e-commerce site, Lomiko will distribute its power converters to electronics suppliers and engineers so that they can test it and incorporate it into their next build.

Gill sees strong synergy with the power converter business and his graphene technology division.

"Utilising graphene to build a faster, stronger more efficient power converter – would give us a significant competitive advantage in a trillion dollar market," stated Gill.

Lomiko is currently trading at .06 with a market capitalisation 8.2 million.

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