How Fast-charging Are Li-ion Batteries Right Now? How about 18 Times Faster?

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Nanotech Energy, one of the world's best suppliers of graphene, graphene oxide, and graphene super batteries, aimed at taking graphene-based energy storage from the research laboratory to the marketplace, claims that it has recently succeeded in developing a new kind of graphene-based lithium batteries that can charge 18 times faster compared to commercially available lithium-ion batteries, taking even shorter than its takes to fill a gas tank.

Investors have just pumped $27.5 million into Los Angeles-based Nanotech Energy. Why? Because the company claims its graphene based lithium batteries can charge 18 times faster than conventional lithium-ion batteries. One of the factors holding back the EV revolution is the perception that electric cars take forever to recharge. People refuse to buy them if they take longer to charge than it takes to fill a gas tank. Who cares about climate change? If it's less convenient, people want nothing to do with it.

But if what Nanotech Energy says is true, it may soon be possible to recharge an EV in less time than it takes to fill up at the Gas N Go. That could really light a fire under the switch to electric transportation, which would be a very good thing indeed.

CleanTechnica readers are a suspicious lot. We have seen hundreds of announcements about revolutionary battery breakthroughs, but so far, the vast majority of them have been vaporware. (Tesla's Battery Day, now scheduled for late June, may be an exception to the rule.) The company's website is alarmingly short on details, graphs, charts, or other verification of such astonishing claims. In fact, the only thing that seems to suggest the company and its technology deserve more than a cursory glance is this statement from Dr. Andreas Hintennach, global head of battery research for Daimler AG.

"Three years ago, we challenged Nanotech Energy to provide us with the safest non-flammable battery chemistry, Nanotech Energy exceeded our challenge. Usually you sacrifice performance once you develop extremely safe chemistry. Now, for the first time, we have

access to extremely safe chemistry that provides high performance and we are very pleased.” Well, if Daimler is pleased, perhaps the company deserves a closer look.

What Is Graphene?

Nanotech Energy says graphene is the world’s first 2-dimensional material. It is 1 million times thinner than a human hair, 200 times stronger and 6 times lighter than steel, and able to stretch 20% of its length. It is highly conductive and carries electrons at the rate of 1 million meters per second. The company says on its website, “Thanks to its outstanding surface area and high electronic conductivity, Nanotech Energy used graphene to improve the electrochemical properties of the lithium ion battery anode and cathode simultaneously. This has enabled a new generation of lithium ion batteries, we call graphene super battery (Gen I), with outstanding power density, energy density and cycling life.”

But wait, there’s more! Not content with its first generation battery, the company has gone back into the lab to create a second generation battery that “can be customized for high energy or high power applications. Designed with very low internal resistance, graphene SUPERbatteries have the ability of fast recharging — up to 18 times faster than a conventional lithium ion battery.” These second generation batteries are said to have “excellent power density, exceptionally high energy density and long cycling life.”

Jack Kavanaugh, CEO of Nanotech Energy, tells PV Magazine that his company is “the world’s top supplier of graphene” and plans to release a non-flammable, environmentally friendly lithium battery that can charge “18 times faster than anything that is currently available on the market” within the next 12 months. “We are confident that we have a one-of-a-kind, industry-changing product that will impact the technologies and bottom lines of multiple end-user markets,” Kavanaugh adds.

Show Us The Specs!

Nowhere does Kavanaugh say exactly what the power density of these wonder batteries is, how much they cost, how many charge/discharge cycles they can withstand, how long they last, what size the cells are, or what charging power they can tolerate. The only thing the company offers on its website is a man and a woman dressed in lab coats staring fondly at test tubes. And Kavanaugh tells PV Magazine the graphene batteries will be able to withstand

800 to 2000 charging cycles but offers no proof of that assertion. That fact that unnamed investors have ponied up $27.5 million in a recent funding round proves nothing other than a fool and his money are soon parted.

To their credit, the folks at PV Magazine researched the company's claim that it is the world's largest supplier of graphene. They note that the list of suppliers they found does not mention Nanotech Energy. Those PV Magazine people are nobody's fool, and good for them for being skeptical. A quick Google search reveals that Jack Kavanaugh is actually a physician and business executive. He is also associated with Multiverse Investment Fund, which is a minority investor in Nanotech Energy.

Is there any real news we can sink our teeth into here? Not really. Some investors put up some money and Daimler says it is pleased with the progress they are making. That and 8 bucks will get you a latte from your favorite barista. If any real technical details emerge about Nanotech Energy, we will be sure to let you know.

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