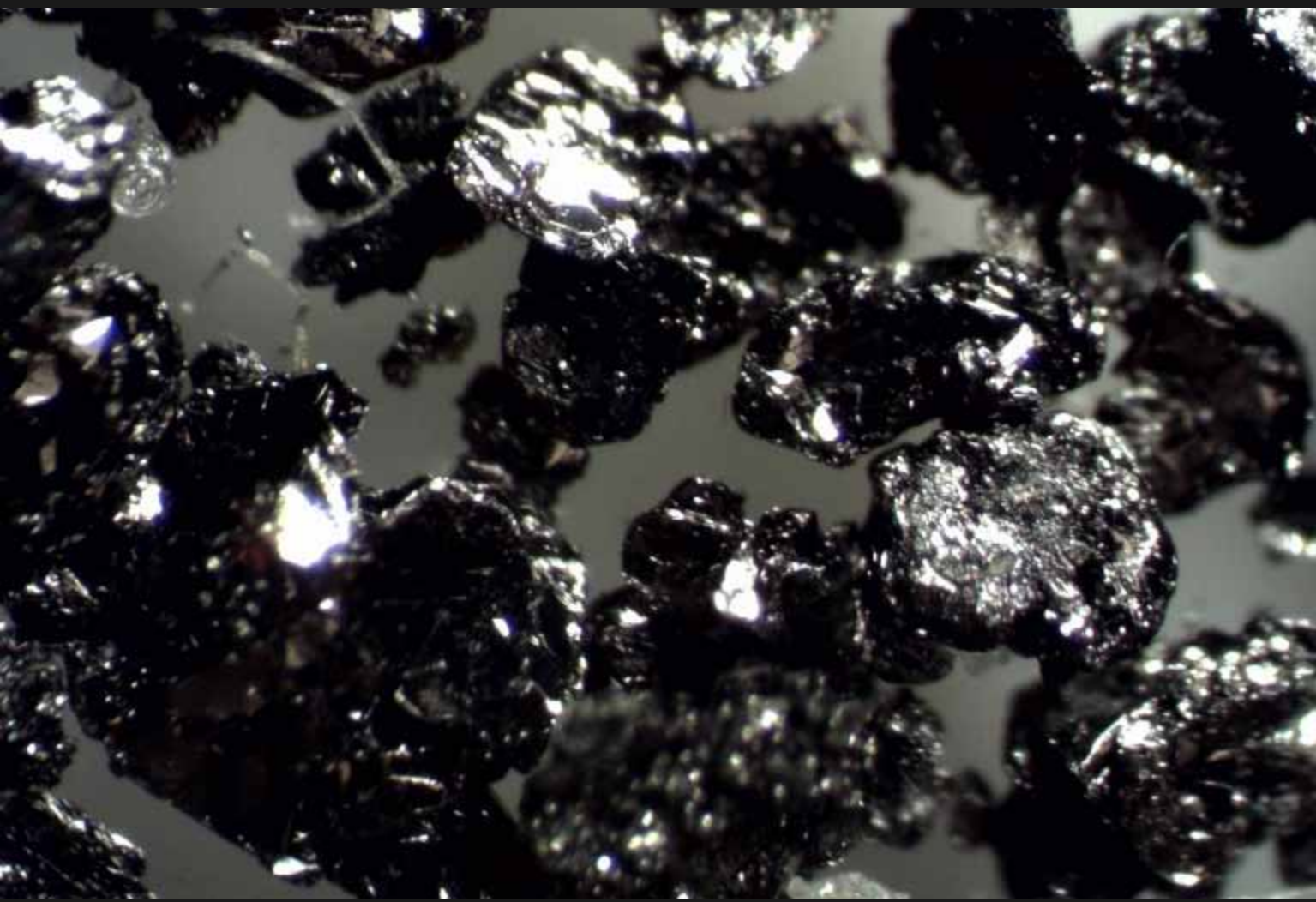
LOMIKO METALS®

Lomiko Metals

THE GATEWAY TO GREENER TECHNOLOGY



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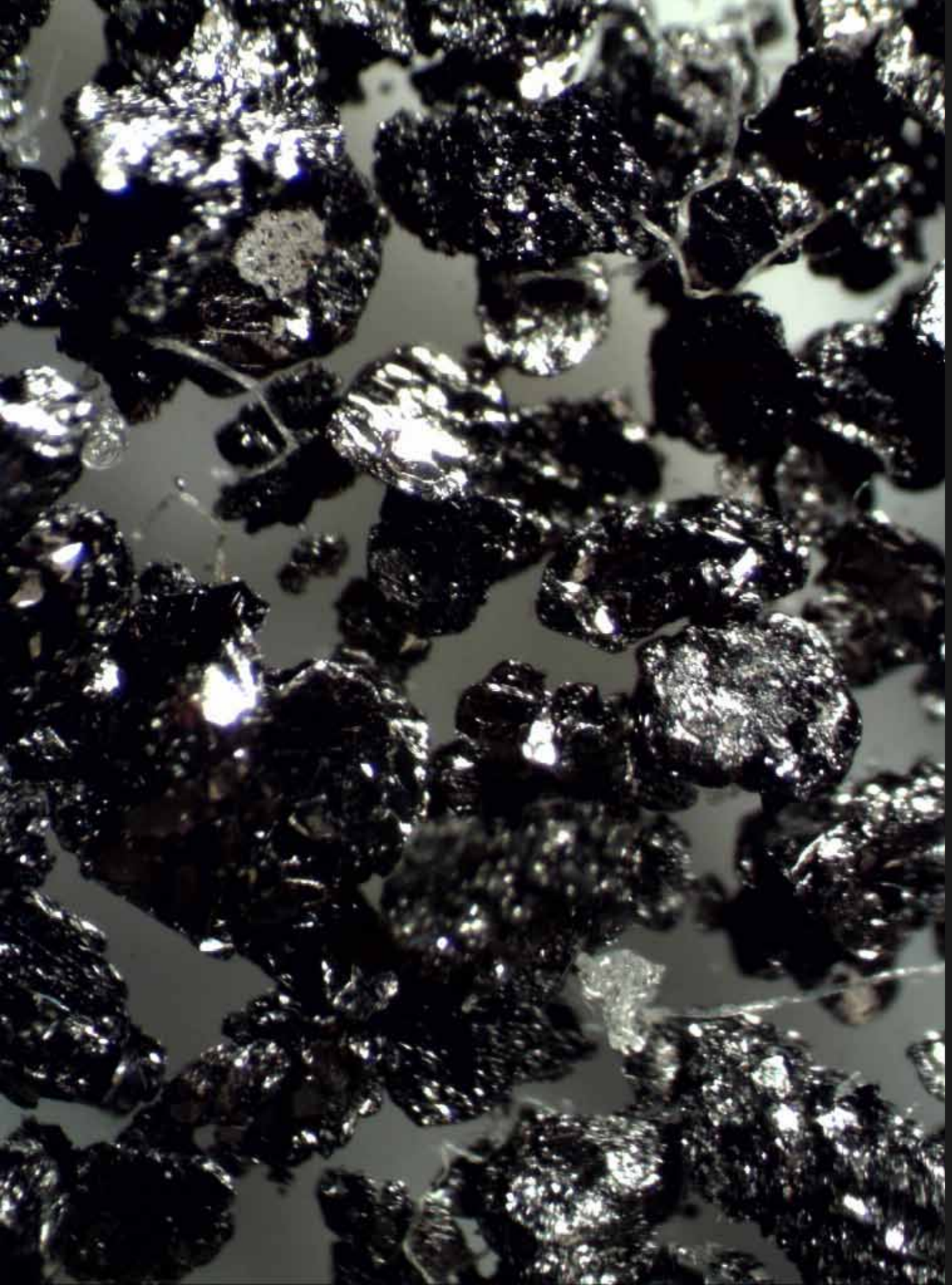

Lomiko Metals

THE GATEWAY TO GREENER TECHNOLOGY

Lomiko Metals' goal was to become a supplier of speciality minerals for use in green technology. Its success with graphene has seen the company become a catalyst for the growth of some of today's most exciting technological advances

WORDS BY *Will Daynes* ▸ RESEARCH BY *Vincent Kielty*

Flake Graphite in host from Quatre Milles Property

The theory of graphene was itself first explored in 1947 by PR Wallace, work that is now widely recognised as the starting point behind the understanding of the electronic properties of 3D graphite. A crystalline allotrope of carbon with two-dimensional properties, high-quality graphene was a long sought after commodity due to its properties which make it strong, light and an excellent conductor of heat and electricity.

57 years after Wallace's pioneering work, Andre Geim and Kostya Novoselov, both based at the University of Manchester in the UK, successfully extracted single-atom thick crystallites from bulk graphite, pulling graphene layers away from graphite using a micromechanical cleavage, or Scotch tape, technique. Geim and Novoselov's efforts would see the pair go on to receive several awards, most notably the 2010 Nobel Prize in Physics.

Fast forward to 2014 and graphene is considered a "supply critical and strategic mineral" by the US and the EU, and can be found being used across the planet in order to achieve critical advances in various industries and technologies. Graphene is also very much seen today as a fundamental ingredient in the recipe that many hope will soon help spur on the development of a greener economy. Multi-national companies such as Samsung and Imerys have been secretly researching new techniques to manufacture graphene and have recently announced new developments that include flexible television screens.

"Graphene is considered a 'supply critical and strategic mineral' in the US and EU, and can be found being used across the planet"

A Paul Gill, President and Chief Executive Officer

One company that supports this vision is Lomiko Metals, a British Columbia based business that came into being with the desire to become a supplier of speciality minerals. "We designed our 'electric minerals' focus to search for opportunities in lithium, copper, tin, silver, cobalt and graphite, each of which possesses specific applications that are vital for the development of new technologies including electric vehicles which use these materials," explains President and Chief Executive Officer, A Paul Gill.

Lomiko's goal has always been to be what Gill calls a "sharp shooting group", one that goes in and identifies early stage properties of particular significance, draw up a strategic plan for said property and create the highest level of value from it by taking it from the acquisition stage through to pre-feasibility.

"By following this business model we have established a strong track record when it comes to capitalising on the opportunities we identify in the marketplace," Gill continues. One such opportunity would be the company's Quatre Milles graphite property, located 175 kilometres northwest of Montreal. Particularly interesting is the East block of that property which consists of 28 contiguous claims totalling approximately 1,600 hectares. The company has already received results from 23 drill holes showing high grade, high carbon content graphite near the surface.

"The purpose of our graphite property is to address the needs of future markets that will require an increasing amount of graphite materials, the electric vehicle sector for example," Gill says. "All the facts and research in front of us strongly suggests that we are reaching a point where supply will soon be outstripped by demand for graphite materials. While at present Chinese groups are tending to sell their graphite at cheap prices, this will not last much longer. The growing demand for graphite and graphene will mean that its value will increase and that is where opportunities really open up for companies like ours."

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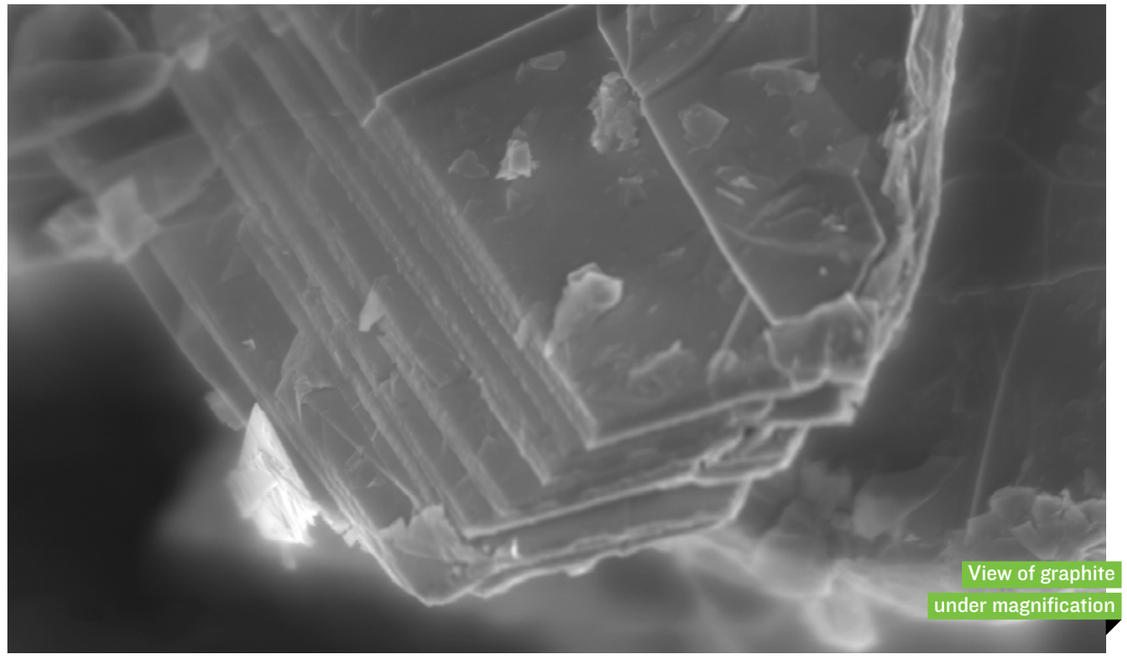


View of graphite under magnification

Did you know?

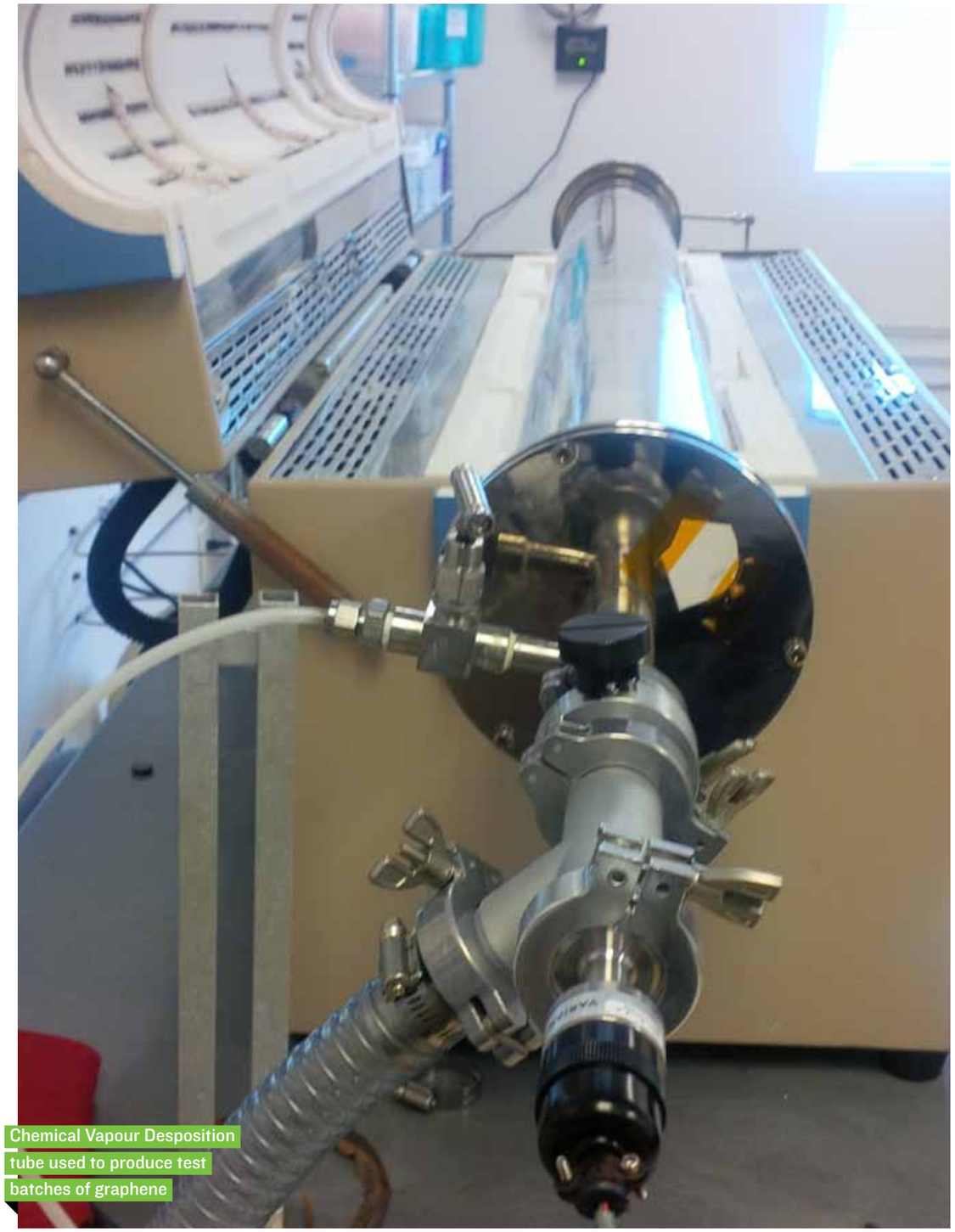
1947
The year that the theory of graphene was first explored

$5.5 million
The amount of financing recently secured by Lomiko

One particular company that Lomiko sought out was Graphene Laboratories, a company committed to applying fundamental science and technology to bring functional graphene materials and devices to market.

"The two scientists who started up this company did so with the aim of synthesising graphene, and selling it to the labs within Fortune 500 companies," Gill states. "We saw a fantastic business model that would require cheaper and increased quantities of graphite for their customers."

The two companies worked closely to develop and find new business opportunities, one of the most interesting being the rapidly expanding market for 3D printing. "It is amazing to think that since 2004 we have gone from a situation where there were under 100 patents registered for graphene to the point where today there are more than 10,000," Gill enthuses. "Naturally a number of these will overlap, however some will be unique



Chemical Vapour Desposition tube used to produce test batches of graphene

"We are about to embark on an OTCQX listing. This will open us up to over 30 million potential investors, a large number of which are major hedge and investment funds"

and game changing. The use of graphene within a 3D printing wire or filament in order to print conductive 3D objects creates new methods of manufacturing, for example Addictive Manufacturing. This is the area where we believe Graphene 3DLan is ahead of the curve."

It isn't the only project that has Gill excited though, another being the new graphene supercapacitor project. Graphene Labs received a prototype of said supercapacitor, as well as a report from Stony Brook University in Long Island and New York State's Center for Advanced Sensor Technology (Sensor CAT).

"We provided the graphite to this project which allowed for the creation of reduced graphene oxide (RGO)," Gill highlights. "This RGO manages to retain the conductive aspects of the graphite within it, and in many cases actually enhances it. When it comes to batteries, the more conductive the material is, the smaller the battery will be and this has huge potential applications for electric vehicles. If you look inside today's electric vehicles the battery tends to be between a quarter and a third of the car size alone. If you can bring the weight down, or even retain its size but with much more battery life provided, the range of the vehicle increases, thus making it much more competitive against its peers within the internal combustion market. The goal for electric vehicles has to be to ensure that there is no change in convenience for the driver and no feeling of loss involved with owning a greener model. The aim has to be for the consumer to say that what they have is a better product and one that they enjoy using, and that will be the quickest and most effective way to get people to positively adapt to this change."

The future certainly looks bright for graphene and for Lomiko as well, what with the company having recently secured financing to the tune of $5.5 million. This will allow the company to take its Quatre Milles graphite property from its later stage exploration phase through to its pre-economic assessment (PEA). This is possible because of several of the project's unique characteristics, including the fact that the mineral itself is near surface. The graphite boasts high carbon content and is extremely amenable to low cost processing.

At time of writing, Lomiko also finds itself on the verge of listing in the United States for the first time. "We are about to embark on an OTCQX listing," Gill concludes. "This will open us up to over 30 million potential investors, a large number of which are major hedge and investment funds. We feel this presents us with a great opportunity to expose our ideas to a very large market, one that has already expressed a strong interest in graphene and its potential, therefore if anything is going to be a catalyst for growth in the short term, this will be it." BE

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