

# Tesla news bolsters confidence in Canadian graphite project

☒ Northern Graphite Corp. (TSXV: NGC | OTCQX: NGPHF) is a mineral exploration and development company that owns a 100% interest in the Bissett Creek graphite mining project located in eastern Ontario.

Northern's Bissett Creek mine is an advanced, pre-development stage project that completed its NI 43-101 Final Bankable Feasibility Study in 2013, and was recently granted its major environmental permit. Northern expects to commence construction in 2017, subject to the availability of financing and species-at-risk permit, both reported to be in advanced stages. Their company website states that the Bissett Creek project has the best flake size distribution and highest margin of any new graphite project, with the added advantages of low capital costs and realistic production targets relative to the size of the market.

A significant growth in demand for graphite is expected since it is essential to cell phones, cameras, laptops, power tools, etc. and applications of Lithium-Ion batteries (LIBs) continue to multiply. Both the EU and US have declared graphite a supply critical material. In 2013, the global graphite market was valued at US\$ 13.6 billion (including synthetic and amorphous graphite), and is projected to increase at 3.70% CAGR and reach US\$ 17.5 billion in 2020.

Tesla Motors' recently announced plans to manufacture lithium-ion batteries, further indicating a promising future for Northern's project as numerous countries strive to increase the uptake of electric vehicles, and experience increased demand for newer technologies such as grid energy storage

systems.

☒ China has recognised this dynamic and since 2012 has increased its imports of graphite exponentially, whilst at the same time, global supply actually fell from its peak in 2011 of 450,000 tonnes to 300,000 tonnes in 2015. This has left a gap to be filled by junior miners.

Northern expects that its plant will process up to 2,900 tonnes of material each day from commencement of production in 2018, with over 90% of the contained graphite being categorised as large flake, the highest in the industry. Over 28 years of operation an average of 20,800 tonnes of concentrate will be produced each year, at an average cash mining cost of CDN\$795 per tonne. The capital cost to construct the processing plant, power plant and associated infrastructure is estimated at a total of \$102m. Northern's feasibility study in 2013 used a weighted average price of \$1,800/tonne to value its concentrates, while prices have since come down, the outlook for graphite is positive, underpinned by solid fundamentals.

With respect to the junior graphite market, the majority are focused on producing flake graphite for batteries. Annual world flake graphite production is 370,000 tonnes, while it takes around 100,000 tonnes of flake concentrate to produce the anode material for 400,000 Tesla Model 3's. This implies that the 370,000 tonne flake market will have to increase by around 27% to service Tesla's requirements alone. Our last assessment was that graphite flake concentrate prices were trading at \$780-840/tonne (80 mesh, 94-97% Cg) in October 2016.

Northern announced this year that they have advanced their proprietary purification and coating technologies and joined forces with Elcora Advanced Materials Corp. (TSXV: ERA | OTCQB: ECORF), Nouveau Monde Mining Enterprises Inc. (TSXV: NOU), Metals of Africa Limited (ASX: MTA), Coulometrics LLC and a private industry partner to acquire a micronizing and spheronizing mill to produce spherical graphite ("SPG"), a critical step in the production of anode material used in LIBs. All natural based SPG is currently produced in China and

is purified using sulfuric and hydrofluoric acid, the method is unsustainable due to high levels of untreated waste and increasing demand for environmentally friendly alternatives. On October 27<sup>th</sup> 2016 Northern and its associates announced their mill was installed and operational.

The Bissett Creek project is in a politically stable authority only 15km from the trans-Canada highway and has easy access to the port of Montreal and north-eastern US markets. Its flat geography makes for easy future expansion and Bissett Creek has very attractive economics even at or below current depressed graphite price levels. Graphite deposits generally yield less than 15% XL flake and yet 50% of Bissett Creek's production will be XL flake, providing the Company with the choice of serving both the LiB and expandable graphite markets.

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## **Greg Bowes on the lithium-ion battery demand and “getting close” to the graphite tipping point**

December 27, 2015 – In a special **InvestorIntel** interview, Publisher Tracy Weslosky interviews Greg Bowes of Northern Graphite Corp. (TSXV: NGC | OTCQX: NGPHF) on graphite prices and the catalysts that may drive both prices and demand.

Explaining how the lithium-ion battery industry is the 2<sup>nd</sup> largest user of graphite, he says we are **“getting close to the tipping point where it will start to drive graphite prices higher. It’s already doing that in the lithium space.”** They

also discuss Christopher Ecclestone's latest Hallgarten & Co. report which raises four competitive advantages including "best infrastructure, lowest capital costs, best flake size distribution and the lowest unit operating cost" for what has also been described as an "oven ready graphite company in an accessible location" before discussing Northern Graphite's spherical graphite technology.

**Tracy Weslosky:** Greg, I was reading your summary that you did for your shareholders recently and I thought it was outstanding. You started by explaining why graphite prices are where they are presently. Can you just share this with our audience please?

**Gregory Bowes:** Yes Tracy. Obviously we've had a slowdown in China and probably bigger than most people think. There's very little growth elsewhere in the world – Japan, Europe, the United States. The steel industry and industrial demand is still the main user of graphite so obviously that's had a very negative effect on graphite prices. The other thing is the strong U.S. dollar. Graphite is priced in U.S. dollars. If you want to think of it simply, it takes less U.S. dollars to buy a ton of graphite hence the price goes down.

**Tracy Weslosky:** Then you went on to discuss the catalysts that might actually drive prices up and drive the demand for graphite. You discussed three in particular. Can you outline these for me please?

**Gregory Bowes:** Yes, obviously one would be an economic recovery – we always get them. When is the \$64 dollar question? If the economic cycle as we know it, the traditional cycle is dead, we might as well all go home. We will get a recovery at some point in steel demand. The second major factor would be that the lithium-ion battery industry, which is growing rapidly. It has become the second largest user of graphite. It is getting close to the tipping point where it

will start to drive graphite prices higher. It's already doing that in the lithium space. That's a big advantage graphite has over other commodities which are also depressed. Nobody's coming up with new uses for oil or coal or copper, but we have a very new dynamic market for graphite. The third factor which would lead to higher share prices, maybe not higher graphite prices, would be strategic partnerships and that kind of thing and graphite projects actually moving forward with real deals.

**Tracy Weslosky:** And speaking of new applications, I was reading you have a very competitive spherical graphite technology. Can you explain this for me?

**Gregory Bowes:** Yes. Graphite mines produce a basic concentrate. In order for that concentrate to be used in lithium-ion batteries it has to be upgraded to spherical graphite. That is where a lot of the excitement is coming from. Every junior, us included, says, we are going to be in the spherical graphite market. That is very easy to say, but it's more difficult to do. Nobody is really answering the question, how are you going to do it, because pretty well all spherical graphite from natural graphite is manufactured in China and those methods are very expensive and difficult to use in the West for environmental or regulatory reasons. To access the complete interview, [click here](#)

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**Northern Graphite and**

# Graphite One lead the graphite sector in the first week of November

✘ **Graphite Market Review** – Northern Graphite Corporation (TSXV: NGC | OTCQX: NGPHF) was one of the few market movers for the week ending on November 7, 2014, gaining 11.84% in Toronto and 9.45% at the OTCQX. The gains contrast with the combined average performance for Graphite companies (members of InvestorIntel) of -2.19%. Graphite One (TSXV: GPH | OTCQX: GPH0F) rose 4.35% in Toronto and 16% at the OTC; Great Lakes Graphite (TSXV: GLK) gained rose 7.69%, Focus Graphite rose 5.88% in Toronto and 5.26% at the OTC while Deveron Resources gained 8.82%. Overall, the fundamentals of graphite demand have not changed and none of the cited companies published any significant news to warrant a shift in market performance, whether up or down. Indeed, the lukewarm performance had far more to do with falling industrial metal prices at the London Metal Exchange, reflecting weaker economic signals from China. Meanwhile, more jobs were created in the US, which strengthened the US Dollar, hurting commodities.

The October economic indicators from China were lower compared to September, suggesting that the People's Republic continues to struggle – relatively speaking of course – to meet economic growth targets. Analysts are betting that the government will ultimately take further measures to support the economy, as GDP predictions growth are at risk. Meanwhile, the economy in the Eurozone has remained under tremendous pressure. The EU Commission has lowered its growth forecasts for this year and the current year, the euro against the US dollar continued again under pressure. The US dollar index rose again significantly, making commodities more expensive for holders of other currencies, which in turn affects demand – lowering

it. Even zinc, for which a demand bottleneck is expected in the coming years, suffered in the markets because of a demand problem in China – reflected by sharply lower sales of zinc intensive e-bikes.

Graphite is one of those raw materials that, even if needed in small amounts, are expensive because of the special property requirements. Graphite is still expected to experience strong demand growth in the coming years. Similar to rare earths, China is the market leader in the market for graphite, which is there but mainly used in steel production. Graphite is also needed to make graphene. Such graphite requires a purity of more than 99% and a handful of producers can deliver it. Apart from graphene, graphite is generating considerable interest and demand because of its use in Lithium-ion batteries, better known as Li-ion batteries. Northern Minerals was, as noted above, one of the few market gainers last week. At the end of October, Northern launched a lithium ion battery (“LiB”) research and testing facility to develop and test natural graphite based anode materials for LiBs aimed at improving battery performance, reducing costs and reducing the environmental impact of anode manufacturing. The facility will be available on normal commercial terms to any company, including Northern’s competitors – so long as results are shared with the public.

One of those competitors is **Focus Graphite**, which last week signed a Pre-Development Agreement with the Uashat Mak Mani-Utenam First Nation with respect to the graphite Lac Knife project. This is very important because failing to secure such agreements can affect deeply affect a project, delaying or preventing governments from granting the relevant permits. Alabama Graphite, meanwhile, announced the conclusion of a warrants purchase in the amount of USD\$ 2.1 million.

**Alabama Graphite** now has a zero balance debt and it plans to use the remaining proceeds from the voluntary exercise of the Warrants for further exploration and development of the Coosa

and Bama Mine Projects in Alabama (USA), initiating a preliminary economic assessment of the Coosa project to generate working capital.

**Great Lakes** announced the use of a more accurate “modified infrared (IR) graphite concentration test method to achieve a high level of accuracy. Great Lakes is moving aggressively and it has set some important targets for the next few months with the resource estimate being the immediate priority. The Company wants to move fast enough to overtake its peers to become the first producer of graphite in North America.

**Graphite One** completed another drill campaign at its Graphite Creek deposit, which is claimed to be the largest flake graphite deposit in North America; certainly, it is one of the most significant large flake deposits in the United States. Having completed the drilling campaign, Graphite One can now proceed toward completing the preliminary economic assessment.

Australia’s **Discovery Africa**, focused on developing graphite at its Nachingwea graphite project in Tanzania, announced the receipt of a mining license covering an additional 103 km<sup>2</sup> of exploration territory. The samples from this area are very promising, having revealed 7.22% and 5.55% of total carbon-graphite, as announced on October 30. The Company also has significant graphite assets in Uganda. Finally, **Deveron Resources** announced it would agree to option as much as a 100% stake in Greencastle Resources’ Rockstone property in northwest Ontario, which is also said to contain zinc. Northern Ontario has surprisingly good grades and varieties of graphite to offer at its Albany deposit. There is good reason to believe that Deveron may find its own world-class deposit featuring the kind of grades and varieties that lend themselves well to battery and graphene production.



**Graphite Market Review** is a special weekly feature on

**InvestorIntel** sponsored by **Alabama Graphite Corp.** (TSXV: ALP | OTCQX: ABGPF).