

#### 19 September 2014 | Initiation of coverage | Mining

# Ready to benefit from the commercialization of Graphene

Alpha Deal Group considers Lomiko Metals Inc. (TSXV: LMR) as a uniquely positioned junior graphite resource company and graphene technology incubator company with a current equity market price inefficiency at a significant discount to its intrinsic value. Lomiko Metals holds the Quatre Milles Graphite property and the Vines Lake property. The company holds 11.23% interest in Graphene 3D Lab (TSXV: GGG). In the September 17, 2013 press release to the market, Lomiko Metals announced confirmation of their ability to turn graphite into graphene which represents tangible value creation and market sustainability. The company has a Strategic Alliance Agreement with Graphene 3D Lab (Graphene 3D) to access technology. This will give access to over 7,000 customers of Graphene 3D, and a potential to increase production from the company's Quatre Milles property. We think the intrinsic value of the company is C\$0.200 per share; this is an upside of 166% from the current market price of C\$0.075 per share.

# Valuation: Notable disparity between current price and intrinsic value

Lomiko Metals (TSXV: LMR) is currently trading at C\$0.075 per share, with a market capitalization of C\$9.56 million. The company holds 4.4 million shares of Graphene 3D (TSXV: GGG). The closing price of Graphene 3D (TSXV: GGG) on September 18, 2014 was C\$ 1.33 per share. Lomiko Metals shares are worth C\$5.85 million. As of April 30, 2014 the company had cash and liquid investments of C\$ 4.86 million. Based on the current market capitalization of the company, there is a penalty of C\$ 0.47 million on the company for holding mine properties.

We have valued the company at C\$0.200 per share based on the potential to exploit the lithium-ion batteries, 3D printing solutions, and natural graphite market. We consider Lomiko Metals at current pricing and current timing a high Alpha opportunity.

#### **Key drivers**

Source: Lomiko Metals Inc.

The key drivers that could positively influence the share price are the results of Preliminary Economic Assessment for the resource estimation for Quatre-Milles, and commercialization of 3D print solutions. These events will help the street get a clear view on the business and can see the stock re-rated.

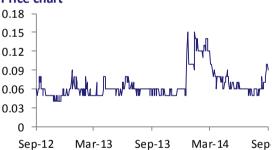
Basic financials (C\$, 000's)	FY 13	1Q FY14	2Q FY14	3Q FY14
Cash	394	158	288	4,862
Mineral assets	1,086	1,086	1,083	1,342
Total assets	1,536	1,463	1,719	6,562
Net Income (Loss)	(602)	(103)	(239)	(238)
EPS in C\$	(0.01)	(0.00)	(0.00)	(0.00)

## Lomiko Metals Inc. (TSXV: LMR)

#### **BUY-SIDE PORTFOLIO SELECTION**

Share price BidBookIQ Value© (Target Price) Alpha Deal Sweet Spot© (Valuation Gap)			C\$ 0.075 C\$ 0.200 166%
Market cap (C\$m)			10.24
Net cash (\$m)			4.86
Enterprise value (\$m)			5.38
No. of shares (m)			136.55
Average daily vol ('000, -3m)			837
Dividend yield (%)			0
PER at Target price (Y1)			n/a
Price/book			1.56
12 month high/low (CS	\$)		0.19/0.05
(%)	<b>1m</b>	<b>3m</b>	<b>12m</b>
Absolute	12.5	50.0	50.0
S&P/TSX Composite	1.8	3.5	21.5

#### **Price chart**



Source: Reuters

Share Price as at close: 18 September, 2014

#### **Next news**

Fourth quarter (August-2014) results, and news of 3D print solutions.

#### **Business**

Quatre Milles property's NI43-101 resource estimate by mid next year.

www.lomiko.com

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## **Investment summary**

Lomiko Metals (TSXV: LMR) will follow a three-pillar value creation at Quatre Milles. The company will outline zones of high-purity, large-flake graphite for its graphene alliance, while at the same time hitting battery storage and traditional graphite markets with lower-purity and amorphous material. This strategy will offer three avenues of revenue sources for the company the first is the actual graphite mine, the second is lithium-ion batteries and finally the graphene sphere. This is a good way to manage risks for the company.

Lomiko Metals (TSXV: LMR) is currently trading at C\$0.07 per share. The total market capitalization for the company is C\$10.24 million.

The company holds 4.4 million shares of Graphene 3D (TSXV: GGG). The closing price of Graphene 3D on September 18, 2014 was C\$ 1.33 per share. Lomiko Metals shares are worth C\$ 5.85 million. As of April 30, 2014 the company had cash and liquid investments of C\$ 4.86 million. Based on the current market capitalization of the company, there is a penalty of C\$ 0.47 million on the company for holding mine properties.

Valuation				
Value for the company in C\$ mn				
Natural graphite mining	10.97			
Spheroidal natural graphite (uncoated)	16.99			
Graphene Supply to Graphene 3D	2.16			
Value from the properties	30.12			
Value of the Investment in Graphene 3D Lab at 30% discount to CMP	4.09			
Cash on the balance sheet	4.86			
Lomiko Metals expected market capitilization	39.07			
Shares outstanding				
Fully diluted number of common shares (mn)	177.76			
Possible dilution (assumption of 10%)	17.78			
Total potential shares outstanding	195.53			
Current market price (C\$)	0.075			
Target price	0.200			
Potential Upside (Downside)	166%			

We at Alpha Deal Group consider an investment in Lomiko Metals (TSXV: LMR) as a long-term wealth creation opportunity. The company's stock is trading at a significant discount to its intrinsic value. We think the intrinsic value of the company is C\$0.200, this is an upside of 166% from the current market price of C\$0.075 per share.

#### Risks to the Investment

Like any pre-production company, Lomiko Metals (TSXV: LMR) will face a number of challenges in its efforts to take its project from the evaluation phase into production. For potential investors, we believe that the most significant risks that should be considered with regard to investment in the stock include:

**Company risk:** As a pre-production resources company, Lomiko Metals will generate operating losses in the medium term. It currently has no projects producing positive cash flow and its ultimate success will depend on its ability to raise capital for development of the project to generate cash flow. Significant capital investment is required to achieve commercial production and there is no guarantee that the Group will be able to raise the funds required to continue these activities.

On August 6, 2014 Lomiko Metals announced that it had been served with a "Notice of Civil Claim" by Alpha Capital Anstalt filed in the Supreme Court of British Columbia. The suit involved Alpha Capital seeking damages or as an alternative, the issuance of 3.33 million common shares and a reduction in the warrant excise price for a further five million common shares at \$0.06 per share, along with other ancillary relief. The impact of the issue of 3.33 million would be a 2.4% dilution for the existing shareholders of the company.

The company's success will depend on its ability to attract and retain skilled and qualified people. The loss of one or more key personnel could have an adverse impact on operations, reputation, relationships and future prospects.

**Mining risk:** Assuming the company is successful in its efforts to develop its project, capital costs, development rates, operating costs, production rates and ore and concentrate grades may all vary considerably from the expectations outlined in the various evaluation studies undertaken to date.

**Commodity price risk:** The principal commodity price risk facing the industry is an adverse movement in the price of graphite concentrates. Any long-term adverse movement in this price would affect the commercial viability of the company's Quatre Milles project. Higher raw material cost would impact the viability of the project.

**Technical risks:** Graphene is still in the early stage of development. The commercial success of the product will depend on various factors that could affect businesses.

Various companies and institutions have filed a number of patents. The commercial success will depend on the costs for businesses to access these patented technologies.

The impact of graphene on the environment and safety is still not known, this could influence the commercialization of the product in the future

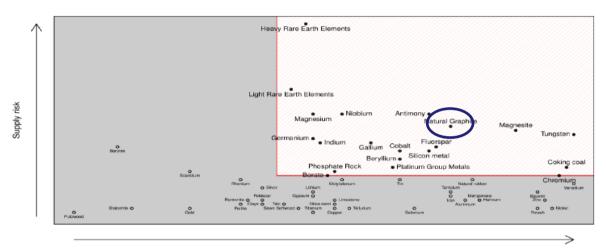
**Country risk:** Canada represents a very low sovereign risk location. However, the potential remains for the company's operations to be affected by issues relating to changes in property title agreements and delays to, or refusals of license renewals and other required permits.

**Exchange rate risk:** Lomiko Metals reports in Canadian dollars while commodities such as graphite tend to be priced in US dollars, any adverse movements in the relevant exchange rate could impact the company's reported earnings.

## **Overview of Graphite**

Graphite, one of the eight forms of the element of carbon, offers a unique range of properties that have led to its use in diverse range of industrial applications and the potential for significant demand growth from a number of new technologies.

The material is abundantly available but the occurrence and recovery rates for larger flake sized graphite are more modest. Given graphite's existing importance in industries and the potential for future demand and supply constraints both the EU and the US have declared graphite a supply critical mineral in 2013.



Economic importance

Source: www.ec.europa.eu

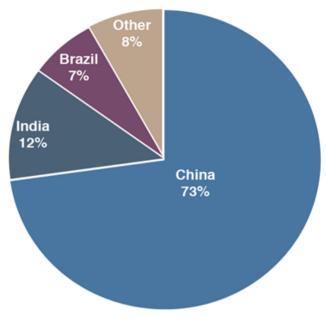
#### **Graphite Supply**

China produces over 70% of the world's graphite supply. Approximately 70% of Chinese production is fine or amorphous graphite while 30% is flake.

Chinese flake production has declined by almost 30% in 2012 due to the closure of uneconomic mines. China is pursuing an aggressive policy of modernizing and consolidating its mining industry and enable professional management of resources, which will improve labor and environmental practices.

In order to protect its industry and encourage value added processing at home, China has instituted a 20% export duty on graphite, as well as a 17% VAT, and it has instituted an export licensing system. All these factors have created stress on the supply of graphite.

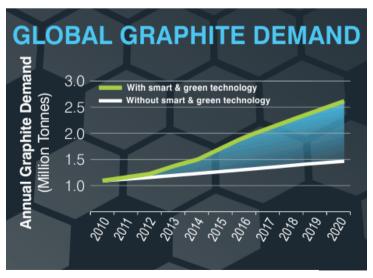
#### **World Graphite Producers**



Source: Angle publishing

#### **Graphite Demand**

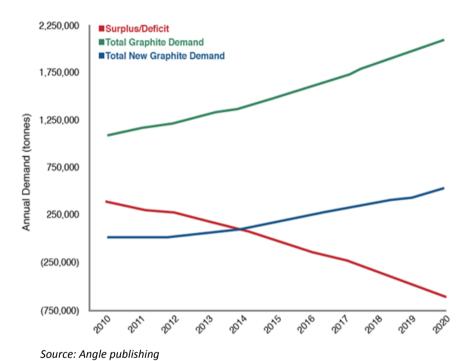
Over the 2004 to 2011 period flake graphite demand grew by an average of 7.5% per year, while that of amorphous graphite demand declined 5.2% per year. Graphite demand has been increasing due to strong demand from traditional steel and automotive markets and the industrialization of emerging economies.



Source: Lomiko Metals

The global graphite market is US\$12 billion in 2012 and expected to reach US\$16 billion by 2020, driven by increasing demand from key enduse industries. Substantial incremental demand will be generated by emerging applications such as lithium-ion batteries. It takes 30 to 40 times more graphite than lithium to make a lithium-ion battery. The demand from new technologies and supply constraints in China will create opportunities for mines outside China.

#### **Natural Graphite Supply/Demand**



#### Lithium-ion batteries

Lithium-ion batteries are small size, low weight, high power capacity and long standby times. Graphite is used in these batteries in the form an anode and the units require very high purity, flake graphite as a feedstock for the final material (spherical graphite). The use of Lithium-ion batteries in smart phones is established. Lithium-ion battery demand is growing at 20-30% per year of which a significant part of this is replacement of traditional technologies.

#### Non Electric Vehicle batteries applications

#### **Smart Phones**

- Today: 487 million units sold per year
- 2025: 2.7 billion units to be sold per year

#### **Tablets**

- Today: 54 million units sold per year
- 2025: 800 million units to be sold per year

#### **Laptops**

- Today: 239 million units sold per year
- 2025: 750 million units to be sold per vear

#### **Power Tools**

- Today: 50 million units sold per year
- 2025: 200 million units to be sold per year

Source: SignumBox, Canalys

# Tesla's new \$5bn 'gigafactory' could spur 37% graphite market growth

US automotive giant Tesla had recently announced plans to build a new \$5 billion lithium-ion battery 'gigafactory'. The factory is forecast to start production by 2017, expected to have an output of 35 GWh per year by 2020.

Industrial Minerals Data had calculated that Tesla's plant would consume at least 28,000 tons of spherical graphite every year if operating at capacity, which equated to about 100,000 tons of flake graphite considering that there is a wastage of 70% using today's technology. This will increase the demand for natural graphite by over 125% from the current demand of approximately 80,000 tons per year. This is just from the Tesla gigafactory without considering other potential demand from Asia.

## **Overview of Graphene**

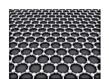
Graphene is a natural material; it is the basic building block of graphite. Graphene has a molecular structure comprising a single layer of carbon atoms bonded in a hexagonal structure. A single layer of graphite is explained as a stack of graphene sheets. Graphene in its purest form is a single sheet of carbon atoms; however, the term graphene is also used for materials that are up to ten layers thick. The properties can be different to those of pure single-layer graphene.

Graphite has been in use for a long time, and the theory of graphene was conceptualized back in 1940. It was only in 2004 that a single graphene sheet was isolated using Scotch tape by Andre Geim and Konstantin Novoselov at Manchester University. The isolation of graphene was a breakthrough for which Geim and Novoselov ultimately won the 2010 Nobel Prize for Physics.

Graphene has several remarkable properties. It is the thinnest known material in the world, and it is one of the strongest ones. It is stronger than diamond and steel of similar thickness. A graphene sheet one meter square in size will be able to support a 4 kg cat. The graphene sheet will weigh only 0.77 milligrams this is 0.001 per cent of the weight of a one square meter of paper sheet, or about the same weight as the cat's whiskers. Graphene is also flexible and transparent and offers interesting optical properties. Graphene has the largest surface area to mass ratio of any material, and is the most stretchable crystal.

#### **Applications of Graphene**

In its purest form, graphene possesses an unsurpassed combination of electrical, mechanical and thermal properties, which gives it the potential to replace existing materials in a wide range of applications and, in the long term, to enable new applications. Graphene is 200 times stronger than steel and six times lighter. The material conducts electricity 30 times faster than silicon and is transparent and bendable.



#### Unsurpassed properties

Mechanical	100x stronger than steel Stiffer than diamond
Electrical	1,000,000x current density of copper 60% > conductivity than copper, silver
Thermal	5x conductivity of aluminium 3x conductivity of diamond
Optically Transparent	~98% optical transmission
Impermeable	Vacuum tight to helium gas

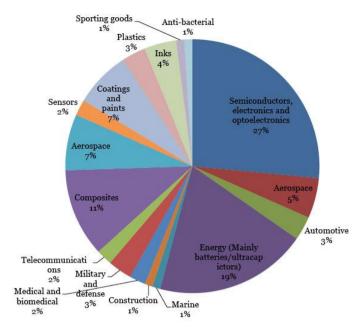
Source: Applied Graphene Materials

"set to become the wonder material of the 21st century" (European Commission, 2013)

"a miracle in the material world" (Daily Telegraph, August 2013)

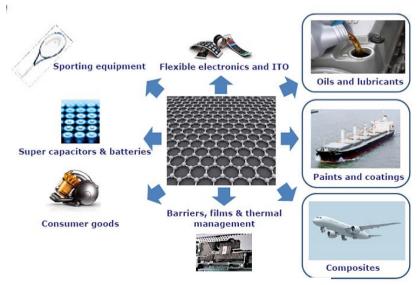
"a sheet as thin as cling film could support an elephant" (Daily Mail, October 2011)

"the nano-sized material with a massive future" (CNN, April 2013)



Source: Applied Graphene Materials

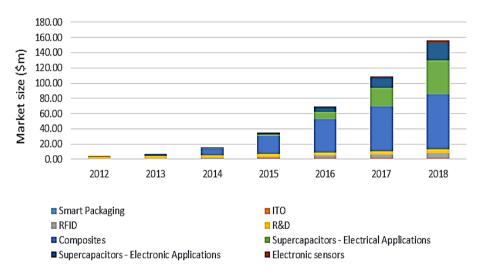
The unique properties in graphene have the potential of a disruptive technology, and many experts have already called graphene a disruptive technology. Graphene has exciting promise in applications such as bendable computer screens, wearable electronics, nano-electronics, liquid crystal displays, organic light-emitting diodes, super capacitors, super thin and unbreakable touchscreens, bio-chemical sensing, and supercharged quantum computers. Graphene composite materials could replace much of the steel now used in the aerospace, defense, and automotive industries by providing greater strength, reduced weight, and better fuel efficiency.



Source: Applied Graphene Materials

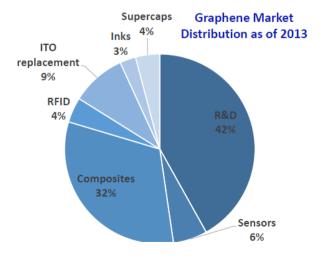
#### **Potential Market Size**

According to a report published by IDTechEx in September 2012, the market for graphene based products, will reach \$100 million by 2018 and further grow to \$575 million by 2022. The main markets including RFID, smart packaging, super capacitors, composites, ITO (Indium Tin Oxide) replacement, sensors, logic and memory etc.



Source: IDTechEx, Graphene Analysis of Technology Markets and Players 2012-

In another report published in September 2013 by BCC, the research firm was far more bullish on the graphene market. The report stated that the total global market for nanomaterials will reach US\$19.6 billion by 2015. BCC in the same report said the market for graphene and its products is estimated to be almost \$195 million by 2018, and will grow at a compound annual growth rate (CAGR) of over 47 per cent to reach \$1.3 billion by 2023.



#### **Research support by Governments**

There is active research into the potential applications of graphene globally, with governments, universities and the European Union investing significant amounts of money into research and applications development in recognition of graphene's international strategic importance.



Source: National Graphene Action Plan 2020 (Malaysia)

- The EU has announced one billion euro funding over ten years under the EU Graphene Flagship Program to fund and coordinate application development activities for graphene commercialization
- the UK Government has announced funding of over £60 million into graphene research
- South Korea has announced that it is planning to spend approximately US\$40 million over six years on helping companies to develop graphene that will be used for touch screen panels and organic light emitting diode panels
- The National University of Singapore has announced that it has invested more than S\$40 million in setting up a graphene research Centre. In addition, in 2011, the National Research Foundation of Singapore awarded grants amounting to S\$60 million for the growth, study and commercialization of twodimensional crystals.

#### Graphene: patent surge reveals global race

Nationality	Number patent publications
Chinese entities	2,204
US entities	1,754
South Korean entities	1,160
United Kingdom entities	54

Source: Q Tannock, CambridgeIP, 2013

The scientific interest in graphene has exploded after it was isolated in 2004. There has been significant number of patents filed by companies like Samsung, IBM, LG electronics, and many research institutions. According to British patent consultancy Cambridge I.P, China has filed for more than 2,200 graphene patents, the most of any country. This is followed by the U.S. with more than 1,700 patents, and South Korea with just under 1,200 patents. Research institutions in China have taken a lead in graphene research. The UK despite being a hotbed of interest in nano materials, lags behind in 4th position for nations holding commercial patents.

Research institute (Country)	Number patent publications
Sungkyunkwan University (South Korea)	134
Zhejiang University (China)	97
Tsinghua University (China)	92
Rice University (US)	56
Massachusetts Institute of Technology (US)	34
Manchester University (UK)	16

Source: Q Tannock, CambridgeIP, 2013

Samsung is early leader in the race. The company has hundreds of published applications for patents on the material worldwide, according to a 2013 report from the U.K.'s Intellectual Property Office. The volume is evidence of the company's determination to find commercial uses for the material. Global sales of mobile devices are expected to reach \$847 billion by 2016, according to researcher Yankee Group. There is the fledgling market for wearable technology, which Jupiter Research is forecasting will grow about 14-fold in five years, to \$19 billion.

Companies/institutions	Country	Number patent publications
Samsung Electronics	Korea	422
Korea Advanced Institute of Science and Technology	Korea	168
IBM	USA	167
University of Qinghua	China	151
Sungkyunwan University	Korea	148
LG Electronics	Korea	124
University of Zhejiang	China	124
Haiyangwang Lighting Technology Co Ltd	China	121
Ocean's King Lighting Science and Technology	China	116
University of Nanjing	China	116

Source: Q Tannock, CambridgeIP, 2013

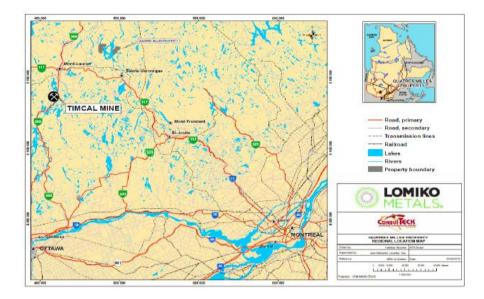
## **Company overview**

Lomiko Metals Inc. (TSXV: LMR) is a Canada-based, exploration company. The company is engaged in the acquisition, exploration and development of resource properties that contain minerals for the new green economy. The company's mineral properties include the Quatre Milles Graphite Property and the Vines Lake property, which both have had recent major discoveries.

Lomiko has a Strategic Alliance with Graphene Labs which has spun off Graphene 3D and the Graphene Supercapacitor Project with Stony Brook University. The company is now structuring the second phase of that research.

#### **Lomiko Metals Properties**

The Quatre Milles Property is road accessible and is located approximately 175 km northwest of Montreal and 17 km due north of the village of Sainte-Veronique, Quebec. The property comprises of two claims blocks, one the east claim block consisting of 28 contiguous mineral claims covering 1,641 hectares for 16.41 square kilometers and the west claim block consisting of 37 contiguous mineral claims covering 2,183 hectares for 21.83 square kilometers. The property is 100% owned by Lomiko Metals.



The company announced the discovery of 23 new high priority magnetic anomalies on Quatre Milles. The company had conducted a 209.6 linear kilometers of magnetic and VLF-EM survey on the west block of Quatre Milles. Overall, the survey identified 88 new conductors, of which, 23 are categorized as high priority.

Quatre Milles West is located four kilometers away from Quatre Milles East and has similar geology. Lomiko Metals plans to start the second phase of exploration program at this property. The exploration program will involve drilling of 50 holes to establish the potential resource. The project is still in early stages; however, the management believes they can get a NI43-101 resource estimate by mid next year.

Lomiko Metals is currently the exclusive provider of graphite to Graphene 3D. On September 17, 2013, Lomiko Metals announced that graphite to graphene conversion using flake graphite from their Quatre Milles property tested at Graphene Laboratories Inc. ("Graphene Labs"), has been successful. The graphite samples were converted to Graphene Oxide ("GO") and Reduced Graphene Oxide ("RGO"), similar to materials that are currently available for sale.

In early 2013, the company had collected seven composite samples from drill core. Tests were conducted on these samples for flake size distribution and purity. The table below summarizes the results for each composite:

Composite Number	US Mesh Sieve Size	Flake Distribution (%)	Purity
	>50 mesh	12.28	92.16
1	80-50 mesh	17.42	92.86
1	100-80 mesh	5.88	84.85
	200-100 mesh	36.27	87.39
	>50 mesh	15.54	95.19
2	80-50 mesh	17.14	100.00
2	100-80 mesh	5.68	100.00
	200-100 mesh	31.22	100.00
	>50 mesh	24.21	93.63
3	80-50 mesh	21.99	98.35
3	100-80 mesh	6.91	100.00
	200-100 mesh	29.08	97.55
	>50 mesh	19.03	97.30
4	80-50 mesh	18.30	100.00
4	100-80 mesh	7.18	98.75
	200-100 mesh	28.25	98.70
	>50 mesh	32.02	98.28
5	80-50 mesh	17.73	100.00
3	100-80 mesh	10.69	97.14
	200-100 mesh	25.64	98.36
	>50 mesh	14.47	98.40
6	80-50 mesh	16.81	100.00
U	100-80 mesh	5.11	96.30
	200-100 mesh	30.23	99.30
	>50 mesh	20.05	98.94
7	80-50 mesh	21.55	98.88
	100-80 mesh	5.18	100.00
	200-100 mesh	31.30	100.00

Source: LMR April 2014 Presentation

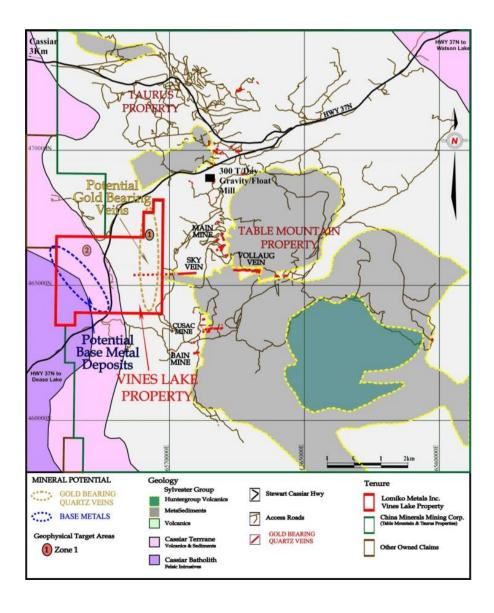
The test results have shown that 75.3% of the graphite at Quatre Milles is greater than 200 mesh. Approximately 36.4% of the graphite tested was found to be large flake graphite (greater than 80 mesh). The test results are very encouraging as they support the project's potential to supply graphite to Graphene 3D.

#### The Vines Lake Property, provides huge exploration opportunity

Lomiko Metals holds rights to 5,403 hectares Vines Lake property, which is located in the southwestern corner of the Cassiar Gold District. The Vines Lake property's northern boundary crosses Highway 37N seven kilometers south of the unincorporated settlement of Jade City. Highway 37N bisects the property north to south.

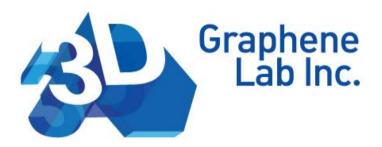
In 2011 Lomiko Metals conducted an exploration program, which comprised soil geochemical survey, reconnaissance geological mapping and litho-geochemical sampling programs. 1,366 soil samples were collected. An anomalous zone of zinc in soil presented an interesting target and required further investigation.

The 2012 mapping and rock geochemistry surveys were successful in locating the bedrock sources of the prominent zinc-in-soil anomaly that was outlined on the west side of Vines Lake.



#### Investment in Graphene 3D Lab Inc.

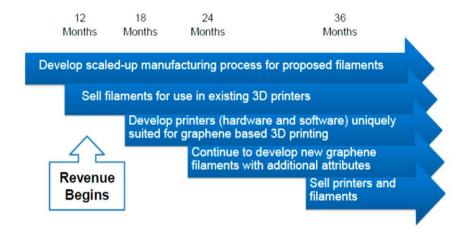
Lomiko Metals (TSXV: LMR) has received approval from the exchange for the acquisition of 1.2 million common shares of MatNic Resources Inc. The transaction was subject to MatNic Resources Inc. receiving regulatory approval to a reverse takeover ("RTO") by Graphene 3D (TSXV: GGG). The transaction is now complete, and Lomiko Metals now holds 4.4 million shares in Graphene 3D, which is approximately 11.23% of the outstanding Shares of Graphene 3D.



The investment in Graphene 3D is part of the overall strategy by Lomiko Metals to act as an incubator for early stage technology companies in the industry. The management said that the company would be able to access technologies developed by these companies.

The management of Graphene 3D believes that the company has proprietary technology, which has the potential to bring 3D printing to the next stage of commercial development and create new markets. The company has two US patent applications pending for its technology.

Graphene 3D thinks adding graphene to polymers, which are currently used in 3D printing, improves the mechanical strength, as well as electrical, and thermal conductivity of the polymers, thereby improving the efficiency of 3D printing. Management of Graphene 3D said that the technology can significantly lower the cost of 3D printing, and improve design flexibility. Graphene 3D expects to start selling materials to 3D printing companies within 3-6 months.



(Source: Graphene 3D)

Graphene 3D has approximately 7,000 customers around the globe. The customer list includes organizations like the NASA, Ford, IBM, Xerox.

Lomiko's Strategic Alliance Agreement with Graphene 3D is to focus on:

- The development of a vertically integrated supply chain for graphene products
- Secure supply of high-quality graphite from the Quatre Milles property for cost-effective and scalable processing and ability to have high quality control.
- To understand key market opportunities for graphene products and develop solutions

Lomiko Metals and Graphene 3D have collaborated with the Research Foundation of Stony Brook University, to investigate novel, energy focused applications for graphene. Under this collaboration, Graphene 3D will process graphite samples from Lomiko's Quatre Mille property into graphene and Stony Brook will then examine the most efficient method to use this graphene for energy storage applications.

Additional value creation is exhibited in Lomiko Metals second project with Stony Brook University. Lomiko announced on May 29, 2013 that the Research Foundation of Stony Brook University ("RF"), on behalf of the Advanced Energy Research and Technology Center ("AERTC") and the Center for Advanced Sensor Technology ("Sensor CAT"), as well as Graphene Laboratories, Inc. ("Graphene Labs") had agreed to establish a lasting cooperation aimed at investigating novel energy-based applications of graphene.

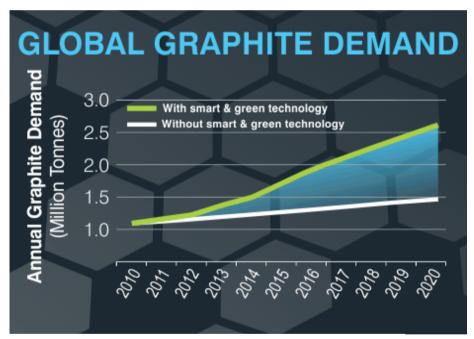
Lomiko Metals and Graphene Labs reported a significant milestone on December 4, 2013 in receiving a prototype graphene supercapacitor and a report from Stony Brook University and New York State's Center for Advanced Sensor Technology (Sensor CAT). The prototype of the supercapacitor was made using graphene composite material using a proprietary technology developed at Graphene Labs. The measured specific capacitance of the prototype was found to be around 500 Farad per gram of the material. This value is comparable with the best values reported in the literature for a supercapacitor of this type.

The exceptional quality of the Reduced Graphene Oxide ("RGO") electrodes allows expansion of the operating voltage window up to 4 Volts. This allows the density of the energy stored in the supercapacitor to be increased. The device has shown this significant performance due to the high specific surface area as well as high electrical conductivity of the graphene produced from graphite material from the Quatre Milles Graphite Project in Quebec. This achievement paves the way for future commercialization efforts by the two companies under the goals of their Strategic Alliance Agreement. The next step is to have the results examined by interested companies within the industry. Again, this is significant in understanding the potential commercial applications of their collaboration with the Research Foundation of Stony Brook University as they advance into Phase II.

### **Investment thesis**

Lomiko Metals (TSXV: LMR) will follow a three-pillar value creation at Quatre Milles. The company will outline zones of high-purity, large-flake graphite for its graphene alliance, while at the same time hitting battery storage and traditional graphite markets with lower-purity and amorphous material. This strategy will offer three avenues of revenue sources for the company the first is the actual graphite mine, the second is lithium-ion batteries and finally the graphene sphere. This is a good way to manage risks for the company.

The 3D printing industry would develop at an astonishing rate. The industry has the potential to grow in the range of 20-40% between 2014 and 2025. The total global 3D printing market revenues projected to reach over U\$12 billion by 2020, growing from U\$\$2 billion in 2012.



Source: Lomiko Metals

Frost & Sullivan estimates the global lithium-ion market to more than double from \$11.7 billion in 2012, to \$22.5 billion by 2016. Navigant Research, estimates that the market for global lithium-ion batteries in light duty vehicles will grow at a CAGR of 22%, from \$3.2 billion in 2013 to \$24.1 billion by 2023.

In a major breakthrough, the space got a massive visibility and validation boost when the already iconic Tesla Motors announced its planned lithium ion battery gigafactory to be ready by 2017. Tesla is projected to use 30,000 tons of battery grade spherical graphite derived from over 100,000 tons of feedstock. The current production of high-grade natural flake is only 80,000 tons. This is the key feedstock for battery grade spherical graphite. The cost of synthetic graphite is roughly double that of natural flake, which will mean the future growth may well belong to the latter as more mines come on-stream.

The company has earmarked US two million dollars for a maiden resource estimate and preliminary economic assessment (PEA) at Quatre Milles, and another US\$1 million for investments in the technology sector. The resource-definition drilling at Quatre Milles is due to start soon.

### **Valuation**

Lomiko Metals (TSXV: LMR) is currently trading at C\$0.075 per share. The total market capitalization for the company is C\$10.24 million.

The company holds 4.4 million shares of Graphene 3D (TSXV: GGG). The closing price of Graphene 3D on September 18, 2014 was C\$ 1.33 per share. Lomiko Metals shares are worth C\$ 5.85 million. As of April 30, 2014 the company had cash and liquid investments of C\$4.86 million. Based on the current market capitalization of the company value, the mine properties of the company are valued at a negative C\$ 0.47 million. This shows that the investors are not giving any value to the core properties of the company. The management has always stressed that the investments in graphene technologies like Graphene 3D is to vertically integrate and provide value added products from the minerals mined from the company properties.

Current valuation summary				
Investment in Graphene 3D (TSXV: GGG)				
No of shares held (in million)	4.40			
Current Market Price (C\$) - September 18, 2014	1.33			
Value of the Investment	5.85			
Lomiko Metals (TSXV: LMR) Balance Sheet				
Cash	1.96			
Investments	2.90			
Cash value of the Balance Sheet	4.86			
Current Market Cap of Lomiko Metals (C\$ mn)	10.24			
Market attributed value for the properties	(0.47)			

Traditional valuation methods like discounted cash flow or relative valuation (EV/Sales, EV/EBITDA or PE multiples) is not the correct approach as the company does not generate any revenues or positive cash flows. It is difficult to value the company on reserves as the discovery is still in the early stage, and the NI 43-101 resource estimate has not been conducted to ascertain the mineral reserves of the mine.

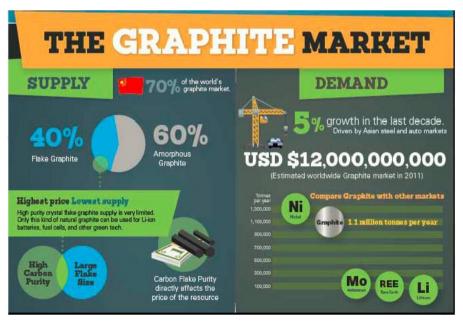
The management of the company looks at the business as a mining company with significant high quality graphite and other minerals. The company's focus to invest in early stage companies and act as an incubator is to leverage the technology these companies would potentially create to sell value added minerals to potential consumers.

Lomiko Metals has to be valued on these three parameters:

- 1. Sell natural graphite to customers in industries (plain vanilla mining play)
- Supply spheroidal natural graphite for Lithium-ion batteries.
   This segment will get a big push from the Tesla gigafactory project
- 3. Supply raw materials after the commercialization of 3D printing technology. Lomiko Metals Strategic Alliance Agreement with Graphene 3D will be used to access potential customers for this line of business

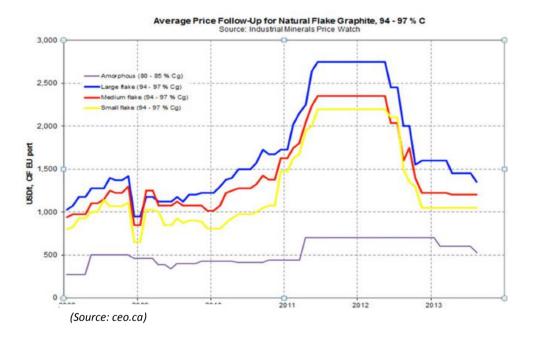
Our valuation approach is based on the vision of the management for the company.

The total global graphite market is around 1.2 million tons. This market will grow at 5-10% over the next 10-15 years. The supply constraints in China will result in a higher growth rate for mines outside china. The advancement of technology should result in the replacement of some of the copper and silicon market with graphite.

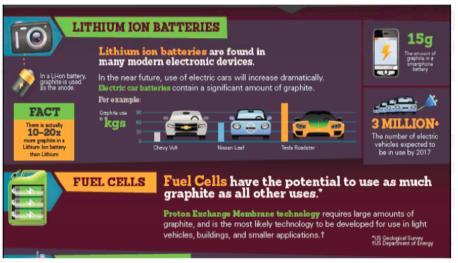


Source: LMR presentation

Lomiko's management is not keen on large-scale mining activities. We assume that the company will be able to sell 3,000 - 4,000 tons of natural graphite. We have assumed an average price per ton of \$1,200. This is a conservative assumption considering the fact that small flake graphite is \$1,250 per ton, so the blended price could be better than our assumption. If we consider the cost of operations and capital expenditure to get the mine into operation level to be approximately C\$503 per ton, this would translate to a cash realization of C\$490 per ton. Based on these set of assumptions, and assuming 20 years life of the mine, using a discount rate of nine percent, and assuming that the revenues will flow in from year five, the value of the business can be estimated to be approximately eleven million.



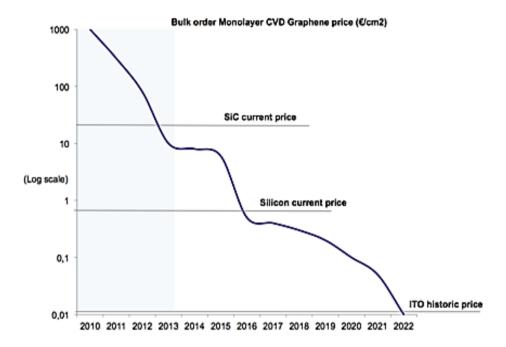
The second strategy is to leverage on the Lithium-ion battery segment. Tesla proposed gigafactory for 2020 would require a total of 35 GWh of energy storage. This translates into approximately 21,600 tons of graphite required for the 500,000 batteries (each with 70 kWh capacity) needed in 2020. The yield on battery-grade graphite is 30% lower using the current processing methods. This means that over 70,000 tons of graphite feedstock would actually be required for these batteries at those yields. Apart from this Tesla will need another 30,000 tons of graphite for other processes. The current market for global natural flake graphite is 80,000 tons. Tesla demand will mean an additional 125% demand from the market.



Source: LMR presentation

We assume that Lomiko Metals can capture atleast 1-2% of this potential requirement. This would translate to a sales of 1,500 tons per year. The average price of uncoated spheroidal graphite is \$3,000-4,000 per ton; and coated spheroidal graphite is \$9,000-10,000 per ton. To be conservative in our assumption if we assume the Lomiko Metals sells uncoated spheroidal graphite, this line of business will create a potential value of approximately sixteen million.

The third strategy is to play the high value game; Lomiko Metals can sell processed graphene to Graphene 3D at the current market price of \$100,000 per ton. Advancement in technology has the potential to reduce the prices.



Source: Graphene estimations

We discount the average price for pure graphene by 50% and assume an average price of \$50,000 per ton. If 3D printing heats up as the market predicts the demand for processed graphene would grow exponentially. We assume the company to sell atleast 30 tons of pure graphene. It is difficult to gauge the exact market potential for this product, so we assume a 30% higher discount rate to accommodate our lack of conviction to gauge the market size.

We value Lomiko's investment in Graphene 3D at 30% discount to the current market price to arrive at the intrinsic value for the company.

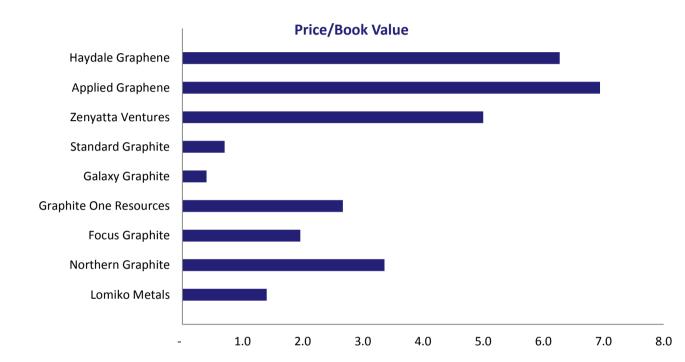
Valuation	
Value for the company in C\$ mn	
Natural graphite mining	10.97
Spheroidal natural graphite (uncoated)	16.99
Graphene Supply to Graphene 3D	2.16
Value from the properties	30.12
Value of the Investment in Graphene 3D Lab at 30% discount to CMP	4.09
Cash on the balance sheet	4.86
Lomiko Metals expected market capitilization	39.07
Shares outstanding	
Fully diluted number of common shares (mn)	177.76
Possible dilution (assumption of 10%)	17.78
Total potential shares outstanding	195.53
Current market price (C\$)	0.075
Target price	0.200
Potential Upside (Downside)	166%

We at Alpha Deal Group consider Lomiko Metals at current pricing and current timing a high Alpha opportunity. The company's stock is trading at a significant discount to its intrinsic value. We think the intrinsic value of the company is C\$0.200, this is an upside of 166% from the current market price of C\$0.075 per share.

We have assumed full dilution of warrants and a further fresh issue of 10% of the outstanding shares to fund its operations over the next few years.

#### **Peer Group Analysis**

Most companies in the sector do not have any revenues and are still in cash burning phase of evolution. This situation would mean the companies have to be valued on the reserves they hold, however Lomiko Metals does not have a NI 43-101 resource estimate. In view of these constraints, we looked at the price to book value for the company to help us understand the ability to run the operations without the need to raise funds in the short-term.



At the current market price, Lomiko's price to book value is 1.5x, this is lower than the mean price to book value of 3.2x. Applied Graphene and Haydale Graphene, which are listed on London Stock Exchange, are trading at a price to book value of over 6.0x.

## Management team

We believe Lomiko's management team has the necessary blend of capital markets, mining and graphite industry experience to take Lomiko's properties to production and establish the company as a major player in the sector.

#### A. Paul Gill (Chief Executive Officer)

Mr. Gill is the President of AJS Management Inc., a company providing management consulting to private and public companies. From November 2003 to October 2006, Mr. Gill was heavily involved in the dynamic growth stage of Norsemont Mining (TSX: NOM) as a Officer, and Director, V.P. Business Development, while the company grew from a market capitalization of \$1 million to \$50 million. Mr. Gill also is the CEO of Epic Mining Corp.

#### **Jacqueline Michael (Chief Financial Officer)**

Ms. Michael has over 20 years of financial and administration experience. In 1988, Ms. Michael co-founded The Conac Group, a software development company for construction management, where she acted as President and CEO. In 1997, Ms. Michael was successful in taking the company public on the CDNX Exchange and helped raise over \$5 million in private placement financings for the company. Ms. Michael has acted as the President and Chief Executive Officer for public companies for over 10 years.

#### Julius Galik (Director)

A business man and a financial advisor with PFSL, Mr. Galik has been involved in start-up situations within the mining exploration industry in Western Canada since 2002, and during the past 8 years has been instrumental in the development and financing of various small capitalized companies, both private and public. Between 2006-2007 Mr. Galik served as director of Dorex Minerals Inc. (TSX-V: DOX), and in September 2009 was elected Dorex President and CEO.

#### **Brian Gusko (Director)**

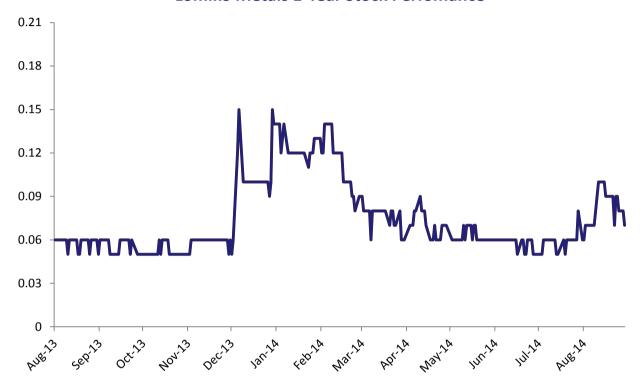
Brian has significant international business experience at the highest level. He was the CFO of UC Resources Ltd., an emerging producer of silver and gold in Mexico.. Years ago he was a research associate with the U.S. Department of Commerce at an embassy posting. His international experience includes working in Corporate Planning with a Mitsubishi Group company in Tokyo, Product Management at a Vodafone spin-off in the Netherlands, and being Managing Director of Palm South Africa's wireless subsidiary. Mr. Gusko received a Bachelor of Arts in Biology (1990) from Carleton University, and an MBA from the University of Calgary (2003). He currently serves on the Board of Directors of Emergent Waste Solutions, and is an Advisor to the Board of Solegear Bioplastics(a bio-plastic company). Brian is a Partner at Vancouver-based, Sustainable Capital Corporation, a capital markets advisory firm.

## Lomiko Metals Inc. (TSXV: LMR) Financials

		Annual		C	uarterly (FY 14	1)
Income Statement (in CAD \$)	Jul-11 A	Jul-12 A	Jul-13 A	Oct-13 A	Jan-14 A	Apr-14 A
Revenue	-	-	-	-	-	-
Expenses						
Advertising and promotion	-	247,851	219,243	24,805	15,977	94,094
Consulting fees	48,267	49,928	33,282	13,309	9,205	21,751
Investor relations	111,352	59,113	17,518	10,742	8	5,711
Management fees	120,000	120,000	120,000	30,000	30,000	30,000
Office and miscellaneous	20,150	27,366	20,370	6,891	8,937	19,118
Professional fees	84,823	65,454	50,200	2,200	12,279	7,343
Research and development	-	-	47,955	4,036	3,963	5,168
Regulatory and trust company fees	44,558	32,129	31,915	10,525	18,840	58,616
Stock-based compensation fees	74,847	76,799	61,254		139,884	
Total Expenses	503,997	678,640	601,737	102,508	239,093	241,801
Operating profit (loss) before other items	(503,997)	(678,640)	(601,737)	(102,508)	(239,093)	(241,801)
Other Items						
Write-down of mineral property acquisition and expl	(240,730)	(199,647)	-	-	-	-
Interest Income	459	-	-	7	6	4,233
Net loss and comprehensive loss	(744,268)	(878,287)	(601,737)	(102,501)	(239,087)	(237,568)
Weighted average number of shares outstanding	47,565,568	59,969,528	68,209,315	78,588,597	82,890,254	109,899,040
Basic and diluted loss per common share in CAD \$	(0.016)	(0.015)	(0.009)	(0.001)	(0.003)	(0.002)
Balance Sheet						
Current Assets						
Cash and cash equivalents	476,531	413,796	394,022	157,683	288,065	4,862,326
Accounts receivable	21.349	17,579	18,853	12,016	149,047	43,259
Advance	-			185,000	185,000	195,500
Prepaid expenses	26,809	100,072	37,232	22,086	13,404	118,691
Total Current Assets	524,689	531,447	450,107	376,785	635,516	5,219,776
Interests in Mineral Properties	511,029	669,581	1,086,002	1,086,002	1,083,385	1,342,294
Total Assets	1,035,718	1,201,028	1,536,109	1,462,787	1,718,901	6,562,070
Liabilities						
Current Liabilities						
Accounts payable and accrued liabilities	48,078	64,096	293,515	22,040	14,936	4,051
Deposit for share issue		-	233,313	36,600	247,000	-,031
Total Current Liabilities	48,078	64,096	293,515	58,640	261,936	4,051
Shareholder's Equity	40,070	04,030	233,313	30,040	201,530	4,031
Share capital	16,786,673	17,352,740	17,825,194	17,979,583	18,108,111	22,018,902
Warrants	295,753	515,536	173,690	283,355	316,690	1,801,862
Share-based payment reserve	254,936	322,002	360,970	360,970	491,012	392,641
Deficit	(16,349,722)	•	-		(17,458,848)	(17,655,386)
Total Shareholder's Equity	987,640	1,136,932	1,242,594	1,404,147	1,456,965	6,558,019
Total Liabilities	1,035,718	1,201,028	1,536,109	1,462,787	1,718,901	6,562,070
Cook flow Chatamant						
Cash flows from operating activities						
Cash flows from operating activities Income (loss) for the year Items not involving cash:	(E00 61F)	(070 207\	(601 727)	(102,501)	(220.007)	(227 500)
, , ,	(580,615)	(878,287)	(601,737)	(102,501)	(239,087)	(237,568)
Mineral property costs written off	187,323	199,647	-	-	-	-
Expired warrants	(163,653) 74,847	76,799	61 254		139,884	-
Stock-based compensation Sub-total	(482,098)	(601,841)	61,254 <b>(540,483)</b>	(102,501)	(99,203)	(237,568)
Changes in non-cash working capital items:	(702,030)	(001,041)	(5-10,465)	(102,301)	(33,203)	(237,300)
Accounts receivable	(4,967)	3,771	(1,274)	(185,000)	73,369	95,288
Prepaid expenses	(2,801)	(73,263)	62,840	15,146	8,682	(105,287)
Accounts payable	8,403	16,017	229,420	(234,875)	(7,103)	(257,894)
Cash from operating activities	(481,463)	(655,316)	(249,497)	(507,230)	(24,255)	(505,461)
Cash flows from financing activities Shares issued	942,209	915,780	593,644	264,054	152,026	5,338,633
Cash from financing activities	942,209	915,780	593,644	264,054	152,026	5,338,633
-		-,	-,	,	, .	, ,
Cash flows from investing activities	(470 441)	(222.400)	/262.021		2.64=	(250,000)
Investment in mineral properties	(178,411)	(323,199)	(363,921)	-	2,617	(258,909)
Cash from investing activities	(178,411)	(323,199)	(363,921)	-	2,617	(258,909

### **Target Price and Recommendation History**

## **Lomiko Metals 1-Year Stock Perfomance**



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