Alliance Magnesium Inc. – Reviving Former Magnesium Smelter in Quebec – Valuation Report

Sector/Industry: Commodities (Magnesium)  www.alliancemagnesium.com

Investment Highlights

➢ Alliance Magnesium Inc. (“AMI”, “company”) is focused on bringing the former Magnola magnesium smelter into production with a goal of becoming a low cost producer of magnesium metal in North America. The project is located in Danville, approximately 100 miles east of Montreal, Quebec.
➢ No exploration or mining is required as the region has had asbestos mining operations for decades, resulting in hundreds of millions of tonnes of serpentine rock tailings with 23% - 25% magnesium metal.
➢ Magnesium is as strong as steel and 40% lighter than aluminium. Its high strength to weight ratio, durability, resistance to impact, and casting characteristics allow it to be used for a wide range of applications.
➢ U.S. Magnesium is currently the only primary magnesium producer in North America. The U.S. and Canada import most of their required magnesium.
➢ AMI intends to apply an optimized combination of existing, proven and stable technologies, with possibilities of improving these technologies using its intellectual knowledge, to process the magnesium contained in serpentine rock in the asbestos mine tailings in the region. Independent laboratory tests conducted by third-parties have shown AMI’s process to be less expensive, and less polluting, than conventional processing methods.
➢ The project site is located at the former industrial site of Magnola, where AMI plans to leverage existing infrastructure, making the project less capital intensive than comparable greenfield projects.
➢ AMI is planning to develop a 50,000 tons / year (tpy) facility in three phases (Pilot Operations, Phase 1, and Phase 2), which has a total estimated upfront project cost of approximately $553 million, including contingencies.
➢ AMI has already arranged $5.25 million in government funding, which is subject to the completion of a minimum equity financing of $5 million. These funds are currently being raised by Alternative Capital Group Inc. (“ACG”), an Exempt Market Dealer based out of Montreal, Quebec, to initiate Pilot operations.
➢ The company is headed by Joël Fournier, Ph.D., MBA, President & CEO. Mr. Fournier owns 23.2 million shares.

Key Risks

➢ Revenues and profitability of the company depend heavily on future magnesium prices.
➢ The actual operating cost and CAPEX may differ from the current estimates.
➢ The project is highly capital intensive. However, using a former industrial site where important existing infrastructure have been maintained in good working conditions makes it less capital intensive than comparable greenfield projects.
➢ Access to capital and share dilution risks.
➢ If the execution of Phase I is unsuccessful, or if the company is not able to raise capital for Phase II, there may not be any exit options for investors.
➢ AMI has yet to complete the last pre-closing conditions imposed by Glencore for the acquisition of the Project site. However, according to management, the Quebec Government, which already owns a 20% stake in the property, has confirmed its intention to intervene in order to facilitate ownership transfer from Glencore.
➢ Possibility of future delays in development; the project has so far been subject to several delays to secure government support and enter into agreements with Glencore.
Overview

Alliance Magnesium Inc., operating since 2012, is a Brossard, Quebec based private company focused on bringing the former Magnola magnesium smelter into production. The Magnola facility was previously owned and operated by Noranda Inc., and is currently owned by Glencore (LSE: GLEN) (80%), and the Quebec Government (20%), through Investissement Quebec (“IQ”). The project site is in Danville, approximately 100 miles east of Montreal. In addition to its own intellectual knowledge, AMI intends to use a combination of existing stable proven technologies, with possibilities of improving these technologies, to recover magnesium from asbestos mine tailings in the region already available for processing. The region has had asbestos mining operations for decades, resulting in hundreds of millions of tonnes of serpentine rock tailings with 23% - 25% magnesium metal.

AMI’s optimized technology is based on using a combined hydrometallurgical and electrolytic process to recover the magnesium contained in serpentine rock. Conventional processes, widely used in China, are highly energy intensive and environmentally unfriendly. Laboratory tests conducted by third-parties have shown AMI’s process to be less expensive and less polluting. An advantage of this project is that, being a brownfield and a past producing site, there is already some facilities on the site which lowers infrastructure setup costs. Also, Quebec’s low electricity price, and the long term supply contracts available from the Quebec Government, are added advantages for the project’s economics.

Noranda had operated the Magnola tailing projects from 2000 to 2003, where the recovery of magnesium from serpentine was technically proven. Privately owned US Magnesium is currently the only primary magnesium producer in North America. AMI is planning to construct and operate a 50,000 tonnes / year (tpy) facility. The project is highly capital intensive with an estimated upfront CAPEX of $517 million. Note that the capital cost would be higher for an equivalent greenfield project due to existing infrastructure. Management plans to develop this project in three phases. **Pilot operations (25 kg per day) will be for a period of 12 months for the completion of a feasibility study and engineering works, and the production of pure Mg metal ingot.** Phase I will include a pre-commercial plant (5,000 tpy), and Phase II will include the full size 50,000 tpy commercial plant.

The project has been subject to delays due to delays in equity financings, attaining government funding and support, negotiations with Glencore to conclude a conditional option to purchase the property, etc. Management was originally planning to take the company public by the end of 2014, along with the commencement of pilot operations. In March 2015, AMI had announced its plans to go public through the reverse takeover of a TSX Venture listed company. However, both parties subsequently decided not to follow through with their arrangement.

The company has so far raised $1.875 million through equity. AMI is currently in the process of completing a $10 million raise to advance the project into pilot operations, of which, **$5.25 million is expected to come from government funding, and the balance from the current equity financing.**
AMI currently has five full-time employees. The company is headed by Joël Fournier, Ph.D., MBA, President & CEO. Mr. Fournier owns 23.2 million shares. We believe management's high equity ownership is encouraging as it indicates alignment of management and investors' interests. Biographies of the key members of the team are listed below. The company has indicated that as the project advances, they will expand their team by adding senior level executives with operational experience.

Joël Fournier, Ph.D., MBA, President & CEO
Joël Fournier is the founder of Alliance Magnesium and is responsible for the development of the proprietary process. He has over 18 years of experience in the technology sector and is the author of over 40 scientific and technical papers as well as several patents. He holds a Ph.D. in chemistry with a specialization in electrochemistry from Sherbrooke University and a Post-Doctorate from the INRS Energy and Materials Institute. He joined the National Research Council of Canada in 1996 as an industrial material scientist. In January 2000, founded and became director of the Centre d’études des procédés chimiques du Québec (CÉPROCQ), a Montréal-based technology transfer research centre. In July 2007, he became COO of Orbite aluminae and subsequently Chief Scientific Officer. In October 2012, he left Orbite to focus all his efforts on Alliance Magnesium.

Pierre Saint-Aubin, B.A.A. - Executive Vice-President
Pierre Saint-Aubin works for 35 years in the field of corporate finance and financial communications. Over this period, he managed financial engineering of public and private companies in Quebec and abroad, as well as the listing of several companies on the stock exchanges in Montreal, Toronto and NASD. A former financial analyst at Québec Securities Commission (now AMF) and a specialist of Investors Relations, he has an extensive network of contacts among many dynamic players in the financial industry.

Guy Adam, Eng. - Vice-President Sustainable Development
Guy Adam is currently the president of Kosmos Innovation Inc. a company involved in the environment technology commercialization. Mr. Adam has more than 35 years of management and technical experience in the environmental business. He started his career as a chemical engineer part of the ICI group.

Yves Lasnier, Eng., MBA - Industrial Market Senior Advisor
Yves Lasnier has more than 25 years of experience in prospecting, developing, and evaluating industrial market. He realized several projects and studies in the following sectors: production and transformation of primary metals, manufacturing sector including automotive parts manufacturing, energy and pulp and paper industries.

Laury Gathier - Director, Research and Development
Ms. Gauthier, chemist, has thirteen years of experience in the areas of analytical chemistry and the development of hydrometallurgical laboratory and pilot stages. She is currently pursuing a Master of Business Administration

As a private company, we believe it is essential to have an independent board of directors to ensure management operates in the best interest of investors. AMI’s board consists of four
Gilles Seguin, LLB., Director
Gilles Seguin specializes in securities law, mergers and acquisitions, and corporate law. He has some 30 years of practice in these areas and is co-head of the securities law team at BCF. He represents numerous foreign companies in South America, Europe, and the United States as well as wealthy individuals wishing to establish themselves in Canada.

Martin Pelletier, Eng., Ph.D., Director
Martin Pelletier is a chemical engineer and consultant in the Pulp and Paper industry. He was Vice-President and COO of containerboard manufacturer Norampac Inc. from 1997 to 2000, and was President and CEO of Rolland Inc. (now Cascades Fine Papers Group) from 2000 to 2002. He is Chairman of the Environment, Health & Safety Committee at Cascades and sits on the Board of C02 Solutions. Mr. Pelletier is an innovator in the field of enzyme-enabled carbon capture.

Michel G. Gagnon
Mr. Gagnon was until recently Vice-President Finance & Business Development and Corporate Secretary of Aluminerie Alouette, the largest smelter in the Americas, where he was instrumental in securing capital investments worth 2 billion dollars and a Hydro Quebec power supply contract worth over 5 billion dollars. He is a Business Graduate from the University of Quebec in Montreal and is also a member of the Institute of Corporate Directors, serving on several boards.

AMI intends to leverage the existing infrastructure of the former Magnola magnesium smelter, located in Danville.

The Magnola plant was opened by Noranda in 1999. At that time, the project was owned 80% by Noranda, and 20% by the Quebec Government. Noranda chose the site due to its proximity to large quantities of serpentine for feed, resulting in low cost access to raw material. Decades of chrysotile-asbestos mining have resulted in millions of tonnes of tailings containing serpentine rock, primarily located in two specific regions in Quebec: Asbestos / Danville and Thetford Mines / Black Lake. Noranda closed the facility at the end of 2003, due to the strong competition from Chinese producers and the resulting drop in magnesium prices. According to management, all of the remaining infrastructure has been maintained in good working condition since.

The following image shows the tailings, location of the former Magnola facility, and AMI’s proposed operations.
Asbestos mine tailings are typically rich in magnesium with a high weight percentage of magnesium (25% - 30%). Various sources estimate that the region has over 400 million tonnes of serpentine tailings available for magnesium production. Assuming magnesium content of 25%, it is estimated that the region holds at least 100 million tonnes of magnesium (400 million tonnes x 25% = 100 million tonnes). To put things in perspective, global annual production in 2014 is estimated to have been just 0.91 million tonnes (Source: USGS).

Noranda merged with Falconbridge in 2005. The combined entity was acquired by Xstrata in 2006. Glencore acquired Xstrata in 2013, and Magnola became a part of Glencore’s portfolio. AMI is currently finalizing the acquisition of the 80% stake of Glencore in the property. A conditional option to purchase the property has been entered into between AMI and Glencore, pursuant to which, it was agreed that the acquisition will not include any upfront cash / share payment, but a 2.5% NSR (net smelter return). The last pre-closing conditions are yet to be completed. According to management, the Quebec Government, which already owns a 20% stake in the property, has confirmed in writing its intention to facilitate ownership transfer from Glencore.

AMI also has letters of interest from different industry leaders (such as Alcoa, Fiat-Chrysler Canada and Fisher) confirming their intention in supporting AMI at various levels, whether by entering into off-take agreements or other business arrangements.

China accounts for 80% - 90% of global magnesium production. The most common deposits currently being exploited in China are dolomite and magnesite deposits. These deposits are primarily processed by thermal reduction, known as the Pidgeon process, which uses a great deal of energy, particularly through heating of the ore to aid in separating the chemical constituents. The Pidgeon process has a low CAPEX, but it is highly energy and labor
intensive. The common processing option in North America is the electrolytic process. Although it is less energy and labor intensive, and more environmentally friendly, this option has a much higher CAPEX. The low energy and labor cost in China allowed China to be a dominant global supplier of magnesium. However, inflation and the resulting increasing in costs in China, have reduced their competitive advantage in recent times. Sources indicate that the direct costs of Chinese producers have increased by about 1.7 to 1.9 times from 2005 to 2011.

The table and charts below summarize the key features of the two processes.

<table>
<thead>
<tr>
<th>Method</th>
<th>Electrolysis</th>
<th>Thermal Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw Materials</td>
<td>magnesite, dolomite, bischofite, carallite, serpentine, olivine, sea water, brines</td>
<td>dolomite, magnesite</td>
</tr>
<tr>
<td>Energy type</td>
<td>hydro-electric, gas, oil</td>
<td>coal, gas</td>
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<td>Energy requirements (MWh / tonnes of Mg)</td>
<td>18-28</td>
<td>45-80</td>
</tr>
<tr>
<td>Process</td>
<td>continuous</td>
<td>batch</td>
</tr>
<tr>
<td>Capital investment (US $/tonne of Mg capacity)</td>
<td>10 000-18 000</td>
<td>≤ 2000</td>
</tr>
<tr>
<td>Manpower requirements</td>
<td>X</td>
<td>5X</td>
</tr>
</tbody>
</table>


**Operating Cost of a Typical Shaanxi (China) Producer / Total Cost – US$0.95/lb**

Source: Clark and Marron
The mineral processing of magnesium usually includes six steps beginning with crushing and grinding of the ore. Intermediary steps include hydrochloric leaching, separating and dehydrating. The final step before casting—electrowinning the magnesium—is one of the most energy and capital intensive steps. The leaching stage of mineral processing is often regarded as the most critical step with regards to final metal recovery. Also of note is the quantity of acid required in the leaching stage.

**The process developed by AMI combines the Magnola Process developed by Noranda and the hydrometallurgical technology developed by Norsk Hydro.** Using its own intellectual knowledge, AMI plans to optimize and improve these stable and proven technologies. The result is a significant reduction in the energy cost and environmental pollutants. AMI plans to produce a sustainable material using hydroelectricity as a clean energy source to recover metal from tailings.

Although its long-term feasibility and economic attractiveness is unknown, Noranda’s Magnola process, albeit in operation for only a short-period, is the only proven technology for extracting magnesium from asbestos tailings at an industrial scale. Norsk Hydro Magnesium had operated two magnesium production plants (Porsgrunn in Norway and Bécancour in Québec) that relied on the electrolysis of anhydrous MgCl2. However, the Magnola process and other electrolytic processes have a few major disadvantages:

- being highly capital intensive, electrolytic plants must operate at very large scales to be profitable
- accessibility of large amounts of relatively inexpensive power is key
- environmental concerns: use of hot concentrated HCl, generation of CO, CHCs (chlorinated hydrocarbons), dioxins, and furans, etc. A large amount of Cl₂ is generated, which combines with the carbon of the anodes, resulting in the formation of numerous organochlorine compounds considered as pollutants. According to management, the polluting source from the process had been addressed in the previous Magnolia plant and had been resolved and reduced to minimal levels.

AMI intends to use hydrogen anodes in the electrolytic process. This approach uses a porous anode through which hydrogen gas diffuses to the electrode surface to react with MgCl₂ to form Cl and Mg. An independent study conducted by INRS suggests that this approach leads to numerous benefits such as a decrease of the energy consumption, and the reduction of organochlorine emissions. Another important benefit is the production of Cl as a by-product of the process, which can be reused as feed for the dehydration process.

The following shows the process flow chart:

The following excerpts from Seneca’s engineering report, December 11, 2014, provides a summary of the process:

“In the proposed process, the serpentine ore is mechanically conditioned and fed to leaching reactors where magnesium and other oxides are digested in hydrochloric acid. At the leaching train’s end, silica and other inert materials are filtered to produce an
amorphous silica cake. Iron is later removed from the brine by ionic precipitation at pH 3. Calcined serpentine is used to raise the brine’s pH, and 95% of iron is neutralized in this step. Ion exchange technologies are used to recover nickel from brine. Then the brine pH is raised using MgO addition, promoting the precipitation of other impurities. The brine is filtered using a filter-press. The purified brine is crystallized and dehydrated to produce MgCl2 prill. The prill is fed to electrolytic baths for Mg metal production.

Electrodes featuring hydrogen dispersion in the electrolyte bath generates dry hydrochloric acid at the interface and significantly increases the efficiency of electrolytic cells. Metallic magnesium is refined and casted in conventional ingot machines. Ingots are shipped (rail or flatbed trucks) as a 99.9% pure finished product.

Hydrogen is produced on-site by natural gas reforming. Natural gas reforming converts CH4 to H2 and CO2. Hydrogen is used in the electrolysis cells and CO2 is released to the atmosphere.”

AMI has filed three patents related to the technology. Two patents are related to the overall process, and the third one is related to the anode design. Laboratory testing has been done by third-parties – Seneca (an engineering firm based in Montreal) and Institut national de la recherche scientifique (INRS - branch of the Université du Québec)

According to Seneca, in their December 2014 report, the total CAPEX for a 50,000 tonne per year of 99.9% pure magnesium metal operation is approximately $650 million, which includes $108 million for contingencies. Management indicated to us that Seneca has since then revised their estimate down to $553 million (including contingencies) after taking into account the project’s existing infrastructure.

The operating cost is estimated at $0.87 /lb of Mg, with a range of $0.76 to $0.98 /lb. The current price of magnesium in the U.S. is approximately US$1.90 / lb.

The following highlights a few of the key advantages of AMI’s business plan:

- AMI’s process uses serpentine rock (chrysotile-asbestos mine tailings) as a source of raw material. Serpentine is an inert material. It commonly contains 32–38% MgO, and 35–40% SiO2, with minor amounts of Fe, Al, Ca, Cr, and Ni. Serpentine does not generate carbon dioxide emissions when processed through hydrometallurgical reactions.

- AMI’s plant will be zero-effluent as all process effluents are re-utilized.

- Electricity, water, and natural gas are available on site. Electric power will be
obtained from the Hydro Quebec grid.

- 100% of the electricity will be hydroelectricity.
- Site is easily accessible through local roads, major highways, and nearby railways.
- Proximity of a deep water port in Becancour Quebec.
- No groups claims in the area.
- Brownfield (reduced CAPEX and existing infrastructure)
- No exploration / mining / extraction operations involved (reduced risk)
- Abundant raw material
- Governmental support

AMI has so far received strong support from government entities. The provincial and federal governments have offered a combined loan of $5.25 million. We have also reviewed a letter from the City of Asbestos, dated June 23, 2015, offering support for the project.

The project is estimated to be developed in three phases, as explained in the chart below.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Pilot</th>
<th>Phase I</th>
<th>Phase II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timing</td>
<td>2016</td>
<td>2017 / H1-2018</td>
<td>H2-2018</td>
</tr>
<tr>
<td>Construction</td>
<td>6 months</td>
<td>12 months</td>
<td>18 months</td>
</tr>
<tr>
<td>Operations</td>
<td>6 months</td>
<td>6 months ramp up</td>
<td>Continue</td>
</tr>
</tbody>
</table>

Scope

- Completion of feasibility study and engineering works / Production of pure Mg metal ingot
- Pre-commercial production with 2 cells / Production of Mg alloys and finalization of off-take agreements
- Commercial production of pure Mg metal and Mg alloys ingot

<table>
<thead>
<tr>
<th>Capacity</th>
<th>25 kg / day</th>
<th>5,000 tpy</th>
<th>50,000 tpy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment</td>
<td>$10M</td>
<td>$70M</td>
<td>$473M</td>
</tr>
</tbody>
</table>

- **Pilot: demonstration phase** - Management intends to establish a pilot plant (operating at 25 kg per day), with two active electrolytic cells, to demonstrate the feasibility and viability of their proprietary technology. The total estimated cost for this phase is $10 million. The commencement of this phase is subject to completion of the current equity raise.

- **Phase I: pre-commercial operations** – In this step, management intends to expand
Outlook on Magnesium

production to 5,000 tons per year with two active electrolytic cells. The total estimated cost for this phase is $70 million. Management will use the produced magnesium for the negotiation of off-take agreements with end users.

- **Phase II: commercial operations** - The final step will be the construction and commissioning of the 50,000 tpy plant. The total cost for this stage (excluding previous phases) is estimated at $473 million (including contingencies). Management estimates Phase II construction to be completed by the end of 2018, which will contain 25 active electrolytic cells.

Magnesium is as strong as steel and 40% lighter than aluminium. **Its high strength to weight ratio, durability, resistance to impact, and casting characteristics allow it to be used for a wide range of applications.** Magnesium is the third most commonly used structural metal after steel and aluminium. According to the CM Group, about 33% of magnesium is used in aluminum-magnesium alloys (primarily for packaging, use in beverage cans, etc.), 33% in die-casting applications (primarily for vehicle components, aerospace, power tools, computer and electronic products, etc.), 15% in iron and steel desulfurization, and the remaining for other applications.

Magnesium, when used in diecasting, helps reduce the weight of vehicles (by about 20-40% more than aluminum), leading to improved fuel economy and lower CO\textsubscript{2} emissions. Also, magnesium dies last longer than those with aluminium due to its low heat content and low affinity for iron. Magnesium is also 100% recyclable, which contributes to the increasing demand for this metal worldwide. However, this characteristic also negatively impacts pricing as a portion of the demand is fulfilled by this source of supply. Zinc and aluminum may substitute magnesium in castings and wrought products, but magnesium’s light weight is an advantage over both aluminum and zinc.

The global demand for magnesium increased by 3% p.a. from 0.66 million in 2007, to 0.79 million in 2013 (Source: CM Group and US Magnesium). Roskill estimates that the global demand grew by 5.5 % p.a. from 2002 to 2012. China, the top consumer, accounts for about 30 - 35% of the global consumption. CM Group estimates global demand for the metal to increase at a compounded annual growth rate (CAGR) of 7.7% over the next 5 years. Demand in China is estimated to grow at 12.1% per annum during the same time period.

On the supply side, global magnesium production has increased by a CAGR of 5.7% during 2002 - 2014 (as shown in the following chart).
China is also the top producer. In 2014, China was estimated to have produced about 88% of the global output of 0.91 million tonnes. Russia, Israel, Kazakhstan, and the U.S. are the other major producers. It is estimated that China's magnesium capacity utilization is just over 50% (Source: CM Group, CMA, and Hatch), implying China’s potential to raise supply if magnesium prices get strong. Management of AMI strongly believes that China has far lesser capacity than most of industry estimates suggest. They believe that most of the plants with excess capacity are old-generation and are currently uneconomical.

**Magnesium prices** – The following chart shows prices since 2000. Magnesium trades at a premium in the U.S. (as show in in the chart below) as the U.S. market is protected from Chinese imports by high antidumping duties. The current price in the U.S. is approximately US$1.99/lb, and in China, is approximately US$0.94/lb.

The weaker C$ will benefit AMI as AMI’s operations are in Canada, and magnesium is priced in US$. 
Outlook: Magnesium producers in the West have been facing tough competition from those in China. The lower cost of production and labor costs in China have enabled producers in China to sell magnesium at a much cheaper price than western producers. Although China’s cost of production has increased significantly over the past decade, relatively cheap and abundant raw materials sources, access to coal/coke gas, and low labor cost are the primary reasons why producers in China have been able to maintain lower costs than their counterparts in the West.

We do not expect any deficit in the market primarily because global production capacity (China currently has capacity of over 0.5 million tonnes per year) is well-above the current demand. An increase in magnesium prices will encourage producers to increase production, which in turn will lead to increased supply and a drop in prices. For our valuation models, we use a long-term forecast price of US$1.85/lb, which is the average price since 2000. Our models also use a long-term C$:US$ exchange rate of 1.1.

AMI currently has 35.529 million shares for total equity of $1.875 million.

The company reported a net loss of $0.62 million in the 12 months ended March 31, 2015. General and Administrative (“G&A”) expenses were $0.79 million.

The following table shows a summary of our cash flow projections for a 25 year project life. Note that we have only presented details of the cash flows for the first 7 years of operations.
Our Net Present Value ("NPV") estimate @ 10% is $221 million with an Internal Rate of Return ("IRR") of 17.12%. The key assumptions used in the model are shown in the table above.

The following chart shows the sensitivity of our NPV@10% and IRR estimates to the project’s life.

The NPV@10%, and the IRR, increases to $297 million and 26.40%, respectively, if 50% of the project cost is funded through debt.
Key Assumptions

Long-Term Magnesium Price (US$/lb) $1.85
Long-Term C$/US$ 1.1
Average Operating Cost (per lb) $0.87
Tax 25%
Discount Rate 10%
Project Life 25 years

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<td>Mg produced (in tonnes)</td>
<td>1,110,000</td>
<td>9,000</td>
<td>5,000</td>
<td>5,000</td>
<td>50,000</td>
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<td>Mg produced (in lbs)</td>
<td>2,447,151,203</td>
<td>2,011,711</td>
<td>11,023,113</td>
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<td>$22,432,035</td>
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<td>$9,590,108</td>
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<td>Corporation G&amp;A Expenses</td>
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<tr>
<td>Interest Expenses</td>
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<td>$12,911,823</td>
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<td>Net Profit</td>
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<td>$5,303,159</td>
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<td>$65,227,267</td>
<td>$65,478,762</td>
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<tr>
<td>Development Costs (incl. contingencies)</td>
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<td>-$10,000,000</td>
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<td>-$473,000,000</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
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<tr>
<td>Cumulative Development Costs</td>
<td>-$10,000,000</td>
<td>-$80,000,000</td>
<td>-$80,000,000</td>
<td>-$553,000,000</td>
<td>-$553,000,000</td>
<td>-$553,000,000</td>
<td>-$553,000,000</td>
</tr>
<tr>
<td>Required Equity</td>
<td>-$276,500,000</td>
<td>-$10,000,000</td>
<td>-$70,000,000</td>
<td>-$473,000,000</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Required Debt</td>
<td>-$276,500,000</td>
<td>$0</td>
<td>-$35,000,000</td>
<td>-$35,000,000</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Debt Principal Payment</td>
<td>$276,500,000</td>
<td>$5,793,354</td>
<td>$6,083,022</td>
<td>$6,387,173</td>
<td>$6,706,532</td>
<td>$7,041,859</td>
<td>$7,395,951</td>
</tr>
<tr>
<td>Net Cash Flows</td>
<td>$1,527,748,607</td>
<td>-$10,000,000</td>
<td>-$41,270,504</td>
<td>$2,420,137</td>
<td>-$229,384,014</td>
<td>$83,346,008</td>
<td>$83,264,176</td>
</tr>
<tr>
<td>Net Present Value @ 10%</td>
<td>$296,663,757</td>
<td>24.48%</td>
<td>26.4%</td>
<td>296,663,757</td>
<td>432,650,681</td>
<td>568,637,605</td>
<td>704,624,529</td>
</tr>
</tbody>
</table>

The sensitivity of our NPV@10% and IRR estimates to debt levels is shown in the table below.

<table>
<thead>
<tr>
<th>Debt to Capital</th>
<th>0%</th>
<th>10%</th>
<th>20%</th>
<th>30%</th>
<th>40%</th>
<th>50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRR</td>
<td>17.1%</td>
<td>18.3%</td>
<td>19.7%</td>
<td>21.4%</td>
<td>23.6%</td>
<td>26.4%</td>
</tr>
<tr>
<td>NPV@10%</td>
<td>$221,217,802</td>
<td>$236,306,993</td>
<td>$251,396,184</td>
<td>$266,485,375</td>
<td>$281,574,566</td>
<td>$296,663,757</td>
</tr>
</tbody>
</table>

The following table shows the sensitivity of the NPV@10% and IRR to the key inputs (assuming debt to capital of 50%).

<table>
<thead>
<tr>
<th>U.S. Mg Prices (US$/lb)</th>
<th>$1.10</th>
<th>$1.35</th>
<th>$1.60</th>
<th>$1.85</th>
<th>$2.10</th>
<th>$2.35</th>
<th>$2.60</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0%</td>
<td>$40,285,652</td>
<td>$543,532,285</td>
<td>$1,033,640,446</td>
<td>$1,527,748,607</td>
<td>$2,019,856,767</td>
<td>$2,511,964,928</td>
<td>$3,004,073,089</td>
</tr>
<tr>
<td>5.0%</td>
<td>-$74,781,504</td>
<td>$170,683,551</td>
<td>$414,476,350</td>
<td>$658,269,148</td>
<td>$902,061,946</td>
<td>$1,145,854,745</td>
<td>$1,389,647,543</td>
</tr>
<tr>
<td>7.5%</td>
<td>-$99,687,162</td>
<td>$81,479,872</td>
<td>$261,158,228</td>
<td>$440,836,584</td>
<td>$620,514,940</td>
<td>$800,193,296</td>
<td>$979,871,652</td>
</tr>
<tr>
<td>10.0%</td>
<td>-$112,627,693</td>
<td>$24,689,910</td>
<td>$680,676,534</td>
<td>$296,663,757</td>
<td>$432,650,681</td>
<td>$568,637,605</td>
<td>$704,624,529</td>
</tr>
<tr>
<td>12.5%</td>
<td>-$118,342,634</td>
<td>-$11,769,897</td>
<td>$93,568,813</td>
<td>$198,927,524</td>
<td>$304,286,235</td>
<td>$409,644,945</td>
<td>$515,003,656</td>
</tr>
<tr>
<td>15.0%</td>
<td>-$119,668,141</td>
<td>-$35,274,602</td>
<td>$48,043,650</td>
<td>$151,361,902</td>
<td>$214,680,154</td>
<td>$297,998,406</td>
<td>$381,316,656</td>
</tr>
<tr>
<td>17.5%</td>
<td>-$118,333,097</td>
<td>-$50,288,215</td>
<td>$16,785,010</td>
<td>$83,858,234</td>
<td>$150,931,459</td>
<td>$218,004,684</td>
<td>$285,077,968</td>
</tr>
</tbody>
</table>
Risks

The following table shows the sensitivity to exchange rates:

<table>
<thead>
<tr>
<th>Long-Term (C$/US$)</th>
<th>IRR</th>
<th>NPV@10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.90</td>
<td>16.78%</td>
<td>$113,699,533</td>
</tr>
<tr>
<td>1.00</td>
<td>21.72%</td>
<td>$205,181,645</td>
</tr>
<tr>
<td>1.10</td>
<td>26.40%</td>
<td>$296,663,757</td>
</tr>
<tr>
<td>1.20</td>
<td>30.92%</td>
<td>$388,145,870</td>
</tr>
<tr>
<td>1.30</td>
<td>35.30%</td>
<td>$479,627,982</td>
</tr>
</tbody>
</table>

The following, we believe, are the key risks associated with the project:

- Revenues and profitability of the company depend heavily on future magnesium prices.
- It is estimated that magnesium producers in China are running at just over 50% of their capacity.
- Although independent laboratory tests have shown AMI’s process to be less expensive and less polluting than conventional processing methods, its long-term viability has yet to be proven.
- The actual operating cost and CAPEX may differ from the current estimates.
- The project is highly capital intensive. However, being a past producer makes it less capital intensive than comparable greenfield projects.
- Access to capital and share dilution risks.
- If the execution of Phase I is unsuccessful, or if the company is not able to raise capital for Phase II, there may not be any exit options for investors.
- As magnesium is not traded in any exchange, it is critical for producers to enter into definitive long-term off take agreements.
- AMI has yet to complete the last pre-closing conditions imposed by Glencore for the
acquisition of the Project site. However, according to management, the Quebec Government, which already owns a 20% stake in the property, has confirmed its intention to intervene in order to facilitate ownership transfer from Glencore.

- Government financings are subject to the completion of the current equity financing to fund pilot operations.
- Possibility of future delays in development; the project has so far been subject to several delays to secure government support and enter into agreements with Glencore.
Fundamental Research Corp. Rating Scale:

Rating – 1: Excellent Return to Risk Ratio
Rating – 2: Very Good Return to Risk Ratio
Rating – 3: Good Return to Risk Ratio
Rating – 4: Average Return to Risk Ratio
Rating – 5: Weak Return to Risk Ratio
Rating – 6: Very Weak Return to Risk Ratio
Rating – 7: Poor Return to Risk Ratio
A “+” indicates the rating is in the top third of the category, A “−” indicates the lower third and no “+” or “−” indicates the middle third of the category.

Fundamental Research Corp. Risk Rating Scale:
1 (Low Risk)
2 (Below Average Risk)
3 (Average Risk)
4 (Speculative)
5 (Highly Speculative)

<table>
<thead>
<tr>
<th>FRC Distribution of Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating - 1</td>
</tr>
<tr>
<td>Rating - 2</td>
</tr>
<tr>
<td>Rating - 3</td>
</tr>
<tr>
<td>Rating - 4</td>
</tr>
<tr>
<td>Rating - 5</td>
</tr>
<tr>
<td>Rating - 6</td>
</tr>
<tr>
<td>Rating - 7</td>
</tr>
<tr>
<td>Suspended</td>
</tr>
</tbody>
</table>

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