



COMPANY BUSINESS PLAN

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 American Manganese Inc.

*A Critical Metals Company Focused on
Recycling Electric Vehicle Lithium-ion Batteries*



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2. EXECUTIVE SUMMARY

American Manganese Inc. (“AMY” or the “Company”) is a critical metal company with a patent pending hydrometallurgical process for recovering cathode metals in lithium-ion batteries such as cobalt, lithium, nickel, manganese, and aluminum. AMY is focused on the recovery of these metals from lithium-ion batteries as their value can be as high as US\$75.8 million per GWh of energy, and the global demand for lithium-ion batteries is forecast to increase 18% annually to US\$46 billion in 2022.

By using a novel combination of reagents and unit operations to provide high extraction, high purity, and minimum use of water, AMY’s lithium-ion battery recycling process is profitable, sustainable, and environmentally friendly.

AMY has successfully raised approximately US\$2.3 million for the Pilot Plant project, for which Kemetco Research Inc. has been contracted to replicate real world closed-circuit conditions in a continuous operation in order to simulate and de-risk commercial production. The Pilot Plant construction and testing is planned to complete in early 2019, at which point AMY will look to raise US\$10 million for the construction of a revenue-generating Demonstration Plant with a processing capacity of three tonnes of scrap cathode material per day. The feed cathode material will be supplied, at the planned processing capacity, by an enterprise that is currently stockpiling scrap cathode material.

The estimated payback period for the Demonstration Plant is 6-9 months, depending on the cathode chemistry being processed. In addition, after three years of operation, the Demonstration plant is estimated to have an NPV ranging from US\$21 million to US\$107 million, also depending on the cathode chemistry being processed.



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3. BUSINESS OVERVIEW

Headquartered in Vancouver, Canada, American Manganese Inc. (“AMY” or the “Company”) is led by CEO and President, Larry Reaugh. AMY was incorporated under the laws of British Columbia on July 8, 1987 and is a publicly traded company with its shares listed on the TSX Venture Exchange.

Capitalizing on the exponential growth of the EV battery opportunity. AMY is a critical metal company with a focus on recycling electric vehicle (EV) lithium-ion batteries (LIB). Due to the rapid development and commercialization of EVs, the LIB market is growing exponentially along with the metals used in the batteries, such as lithium, cobalt, manganese, nickel, and aluminum. The recoverable value for these metals is estimated to be as high as US\$75.8M per GWh and the recycling of LIBs creates a low-cost supply of battery metals for manufacturers.

Table 1 - Battery Metal Value Per KWh (June 28, 2018) (Fessler, 2018)

Cathode Chemistry	kg/kWh				Battery Size (kWh)	Total Value (USD)	USD/kWh
	Lithium	Cobalt	Nickel	Manganese			
LCO	0.113	0.959	0.000	0.000	1,000,000 (1 GWh)	\$ 75.8 M	\$76
NCA	0.112	0.143	0.759	0.000		\$ 22.5 M	\$22
NMC-111	0.139	0.394	0.392	0.367		\$ 37.6 M	\$38
NMC-622	0.126	0.214	0.641	0.200		\$ 26.7 M	\$27
NMC-811	0.111	0.094	0.750	0.088		\$ 18.6 M	\$19

Note: LCO = Lithium-Cobalt-Oxide, NCA = Nickel-Cobalt-Aluminum, NMC = Nickel-Manganese-Cobalt

Battery metals are currently sourced from mines that are limited by social and environmental barriers in their operating countries. In addition, the existing methods for recycling spent LIBs are inefficient and cannot capture the whole value of the battery. However, recycling of spent



batteries is a certainty thanks to increasing recycling legislation around the world that will hold EV and LIB manufacturers accountable for the collection and recycling of their spent batteries.

Using Intellectual Property (IP) to reclaim critical battery metals economically, efficiently, cleanly, and responsibly. AMY's patent-pending lithium-ion process originated from the development of the company's Artillery Peak manganese property in Arizona. The Company had contracted Kemetco Research Inc. to develop a process that can recover electrolytic manganese metal (EMM) economically from a low-grade manganese deposit. Kemetco was successful in this endeavor, but additionally, it was able to successfully produce working lithium-ion battery prototypes utilizing the chemical manganese dioxide (CMD) from Artillery Peak. This research gave momentum to continue developing the hydrometallurgical Pilot Plant, seen in Figure 1. The process has since been patented under US Patent No. 8460681, Canada Patent No. 2808627, Chinese Patent No. 201180050306.7, and Republic of South Africa Patent No. 2013/01364.

In April 2016, the Company contracted Kemetco Research Inc. to extend their existing intellectual property to recycling cathode materials in lithium-ion batteries. By November 2017, Kemetco had successfully recovered 100% of the cathode materials using the novel process. AMY has since then filed the Co-operative Treaty Patent application and Non-Provisional Patent application for their hydrometallurgical process in November 2017. This patent was published May 17, 2018 ([Patent Information](#)).



Figure 1 - Electrolytic Manganese Dioxide Recovery Pilot Plant for Low Grade Manganese Ores

Preserving future feedstock potential. In addition to Artillery Peak, the Company's mineral property rights include the high-grade Hazelton Cobalt-Copper-Gold project in British Columbia, which is in a joint venture with New World Cobalt Limited ([Please see the Company's news release dated December 28, 2017 for details of the joint venture](#)). The joint venture allows AMY to realize value from its Hazelton holdings, while allowing the Company to maintain its core focus on the promising battery recycling work.



4. DEMONSTRATION PLANT FINANCIAL MODEL

Creating value from spent batteries. The Company plans to build a Demonstration Plant with a processing capacity of 3 tonnes per day (TPD), with feedstock being supplied by an enterprise that is currently stockpiling the cathode feed material. Figure 2 below shows the projected profitability for such a US\$10M Demonstration Plant. This forecast has been reviewed by Kemetco.

4.1. INVESTMENT PAYBACK PERIOD

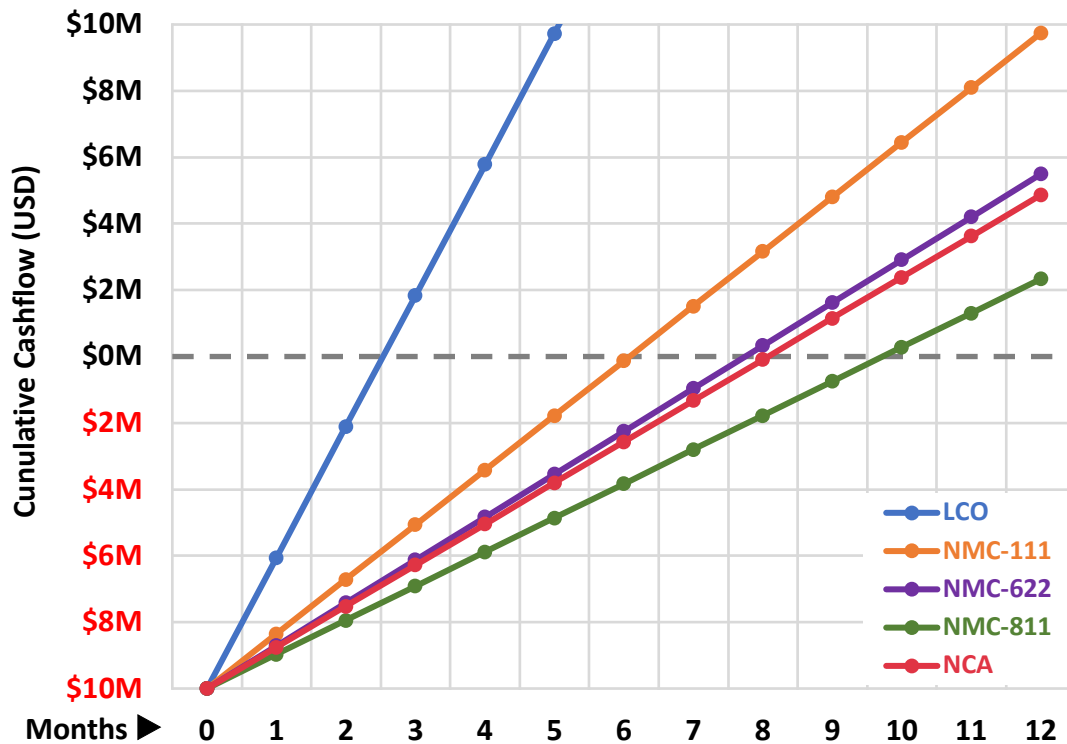


Figure 2 - Estimated Demonstration Plant Payback Period (June 28, 2018)

AMY estimates the payback period for its 3 TPD Demonstration Plant can be as early as 3 months for the LCO cathode chemistry, and range from 6 to 9 months for other chemistries.



4.2. ESTIMATED ANNUAL OPERATING PROFIT (NMC-622)

The following section will strictly refer to the NMC-622 battery chemistry since it is expected to be the most dominant chemistry used in EVs. However, financial models were completed for each of the popular battery chemistries used today. Tables and Figures for LCO, NMC-111, NMC-811, and NCA can be found in APPENDIX A – FINANCIAL MODELS.

The revenues in Table 2 were derived from commodity prices for each of the recoverable cathode metals, multiplied by the amount of each metal contained in three tonnes of the cathode material.

Three tonnes of NMC-622 cathode material contains 1,143kg of lithium carbonate, 365kg of cobalt, 1,090kg of nickel, and 340kg of manganese, which is US\$65,000 of recoverable value that the AMY process can recover per day. Therefore, for NMC-622 cathode material, the estimated annual gross profit for the Demonstration Plant at a 3 TPD processing rate is US\$15.5 million (65% operating margin) before tax.

Table 2 - Annual Gross Profit for NMC-622 Recycling at 3 TPD (June 28, 2018)

Metal	Market Price (USD/kg)	NMC622 (kg)	Total (USD)
Lithium Carbonate	\$17.00	1,143	\$7.1 M
Cobalt	\$79.00	365	\$10.52 M
Nickel	\$14.70	1,090	\$5.85 M
Manganese	\$2.03	340	\$.25 M
Aluminium	\$2.20	0	\$.0 M
Total Annual Revenue			\$23.71 M
Annual Operating Expenses			
Reagents	\$1.07 M		
Labour and G&A	\$3.26 M		
Utilities	\$0.13 M		
Feed Material Delivered	\$2.37 M		
Maintenance	\$0.53 M		
Building Rent	\$0.18 M		
Shipping & Packaging	\$0.68 M		
Total Annual Operating Expense	\$8.22 M		
Annual Operating Profit	\$15.5 M		
Operating Margin	65%		



4.3. NET PRESENT VALUE (NMC-622)

Using an interest rate of 10%, the net present value, after three years, for the 3 TPD Demonstration Plant is estimated to be US\$28.53 million with an IRR of 144%.

Table 3 - NPV for NMC-622 Recycling (June 28, 2018)

Interest Rate		
	10%	
Period	Cashflow	Balance
Year 0	\$ (10.0)M	\$ (10.0)M
Year 1	\$ 15.5 M	\$ 5.5 M
Year 2	\$ 15.5 M	\$ 21.0 M
Year 3	\$ 15.5 M	\$ 36.5 M
	NPV	Payback
	\$28.53 M	7.8 Months
		IRR
		144%

4.4. SENSITIVITY ANALYSIS (NMC-622)

As seen in Figure 3, the Company evaluated a +/- 30% change in variables such as commodity prices, capital expenses, operating expenses, and interest rate. For the NMC-622 cathode chemistry, cobalt price has the largest impact on NPV. However, AMY estimates that its NPV will still be positive, even with a drastic reduction in cobalt price because a 30% reduction in cobalt price lowers the NPV by US\$7 million. In contrast, a 30% increase will raise the Demonstration Plant NPV by US\$7 million.

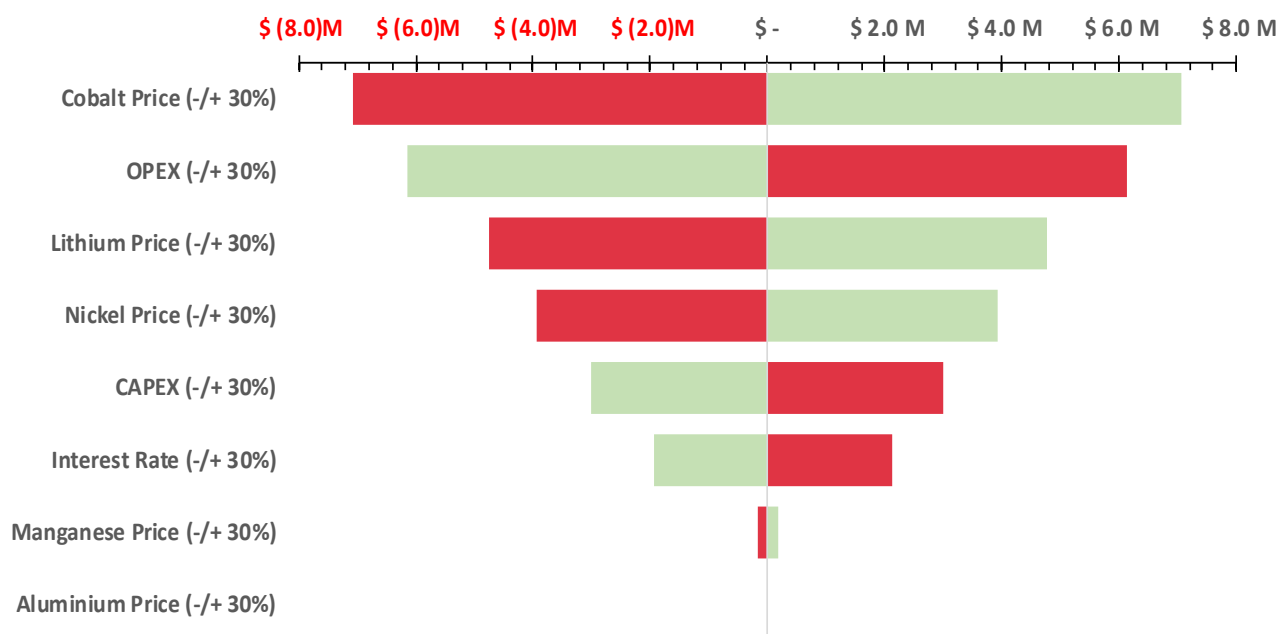


Figure 3 - Impact on NPV by Change in Variable (NMC-622)

4.5. OPERATING EXPENSES

The following foreseeable Demonstration Plant operating expenses are estimated with the following data and assumptions.

4.5.1. REAGENTS

Reagents are the primary direct cost in AMY's patented process. The cost was derived from the quantity of reagents used to process three tonnes of cathode material multiplied by the cost of the reagent. The same composition of reagents is used for all battery chemistries.

4.5.2. LABOUR AND MAINTENANCE

The Demonstration Plant will operate 24 hours/day and will require three shifts of four plant operators working 8-hour shifts at a rate of US\$ 45/hour.



Additional staff -- such as an office administrator, an accountant, shipping and receiving, an assistant manager, and a manager -- have each been accounted for in the 8-hour shift at the same of rate of US\$ 45/hour. The total labour cost per day is estimated to be US\$ 5,760, plus an additional US\$ 3,168 per day for General & Administrative expenses.

Maintenance includes three 8-hour shifts of one maintenance personnel at a rate of US\$ 60/hr.

4.5.3. FEED MATERIAL DELIVERED

The cost of delivered feed material was assumed to be 10% of the total cathode value.

4.5.4. BUILDING AND UTILITIES

The building rent and utility costs for the Demonstration Plant are estimated for a 15,000 ft² facility that would be located in the greater Vancouver area.

Utility costs are scaled up from current rates used in the lab testing.

4.5.5. SHIPPING AND PACKAGING

AMY was quoted for the shipping and packaging of two 20-tonne loads of the processed cathode material across Canada every week.

4.5.6. DISASSEMBLY

By initially treating cathode scraps with the Demonstration Plant, AMY can by-pass disassembly costs.



5. STRATEGY

AMY's strategy is to recycle valuable cathode metals for the global lithium-ion battery supply chain at the highest recovery and purity of battery grade lithium, cobalt, manganese, nickel, and aluminium, using AMY's patent pending process to make recovery clean, sustainable, efficient and profitable. AMY is also collaborating with innovative companies on initiatives to help advance the growing lithium-ion battery industry.

As EV sales increase, meeting battery metal demand from primary mining will become increasingly difficult. For environmental as well as economic reasons, the recycling of spent batteries is a certainty thanks to increasing regulations around the world. Therefore, AMY believes EV manufacturers, battery manufacturers, and waste collection enterprises will look to partnerships with AMY's unique recycling technology.

Market signals already validate AMY's assumptions. For instance, Tesla announced that, "ultimately what we want is a closed loop at the Gigafactories that reuses recycled materials" (CleanTechnica, 2018). In addition, Northvolt's goal is to build the world's greenest batteries, with a cradle-to-grave approach that would incorporate a recycling facility (Wired, 2017).

5.1. RECYCLING MATERIAL SOURCE

AMY is looking to demonstrate the commercial viability of the recycling process. To this end, AMY has negotiated a supply source of cathode material from two individual sources which are currently being used at the Company's Pilot Plant. Test work at the Pilot Plant is the main priority in order to ensure continuous process efficiency and continue development of Intellectual Property. After the Pilot Plant phase, the Demonstration Plant will be constructed to process 3 TPD of the cathode material and demonstrate the commercial viability of the AMY recycling process.



5.1.1. AMERICAN RECYCLING SOURCE

Capitalizing on pre-consumer waste material. The first source of cathode material is supplied by an American recycling company that collects faulty scrap cathode material from battery manufacturers and has enough scrap cathode material inventory to supply AMY with more than one hundred tonnes of scrap cathode material per month. It is estimated that 4-5% of battery manufacturing does not pass quality assurance and ends up being scrapped during production, which is then collected by the American recycling company supplying AMY. Therefore, AMY has planned to construct a 3 TPD Demonstration Plant focused on recycling the scrap cathode material and capitalize on the existing available supplies.

In addition, the cathode material is obtained without any physical separation of battery cells as seen in Figure 4.



Figure 4 - American Recycler Cathode Material



5.1.2. EUROPEAN RECYCLING SOURCE

Advancing recycling Intellectual Property for all forms of lithium-ion battery waste. The second source of cathode test material is supplied by a European recycling company. In contrast to the faulty cathode supply in section 5.1.1, the European recycler crushes and grinds whole battery cells without separating the different components such as the casing, anode, and cathode. This creates the cathode powder seen in Figure 5. However, because there are impurities mixed in with the cathode metals, AMY is expanding its Intellectual Property to efficiently recover as many valuable metals as possible from this form of lithium-ion batteries. This powder form is better suited for the collection of portable electronic devices with batteries that come in different shapes and sizes that are difficult to disassemble with automation.

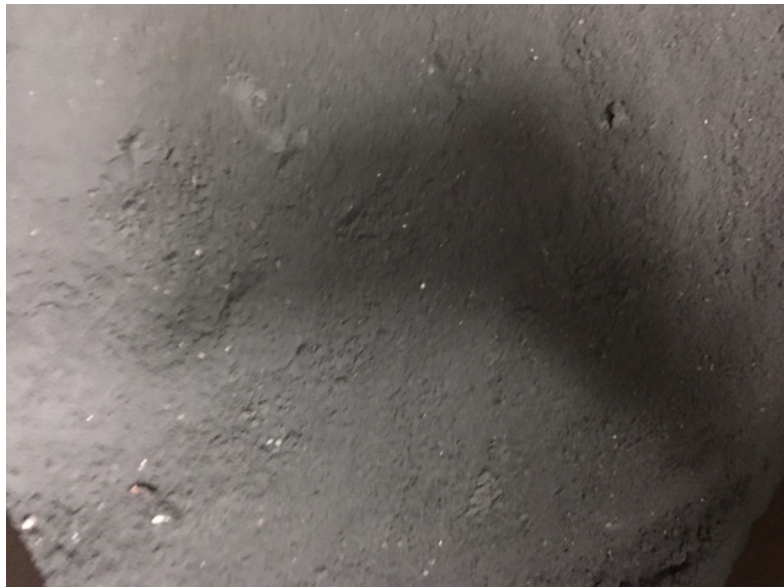


Figure 5 - European Recycler Cathode Material



5.2. BLOCKCHAIN INITIATIVE

Mapping the lithium-ion battery supply chain. The Company has entered into a collaborative agreement with Circular Ltd, out of London, to develop a blockchain technology that can track battery metals to help ensure ethical and sustainable sourcing. AMY and Circular will be mapping the lifecycle of an EV battery to better understand the value flow through the production process and lifecycle, and to provide a road map for AMY to source spent lithium-ion batteries.

OEMs could secure a sustainable supply chain and identify to their customers the provenance of materials used in their EVs. Blockchain technology can validate that materials have been recovered and recycled as efficiently as possible, and to exclude materials that are not ethically or sustainably sourced.

AMY hopes to create a circular economy solution for the lithium-ion battery supply chain and to create collaborative efforts with like-minded EV and LIB manufacturers.

5.3. RESPONSIBLE COBALT INITIATIVE

In June 2018, AMY joined Apple, BMW, Samsung and others as the 33rd full-time member of the Responsible Cobalt Initiative (RCI). The Company recognizes the vulnerability and insecurity of the cobalt supply chain and hopes to gain exposure for its lithium-ion battery recycling technology by helping face challenges, sharing responsibility, and taking joint actions with other RCI members and stakeholders to achieve a win-win solution in the cobalt supply chain.

The Responsible Cobalt Initiative aims to:

- Have downstream and upstream companies recognize and align their supply chain policies with the *OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas* and the *Chinese Due Diligence Guidelines for*



Responsible Mineral Supply Chains in order to increase transparency in the cobalt supply chain and improve supply chain governance.

- Promote cooperation with the Government of the Democratic Republic of the Congo and affected local communities to take and/or support actions that address the risks and challenges in the cobalt supply chain.
- Develop a common communication strategy to communicate progress and results effectively to impacted communities, miners, and the public; and
- Harmonize working objectives and plans with other stakeholders.

5.4. AUTOMATED BATTERY CELL DISASSEMBLY

AMY plans to process the faulty scrap cathode material in section 5.1.1 to initiate production for the 3 TPD Demonstration Plant and bypass the need to disassemble battery cells. AMY can generate revenue from the Demonstration Plant while developing an automated cell disassembly process for much larger commercial plants. Unlike portable electronics, EV LIBs are more standardized and are collected in larger quantities that can be economically disassembled with automation.



5.5. COMPLETED AND FUTURE MILESTONES

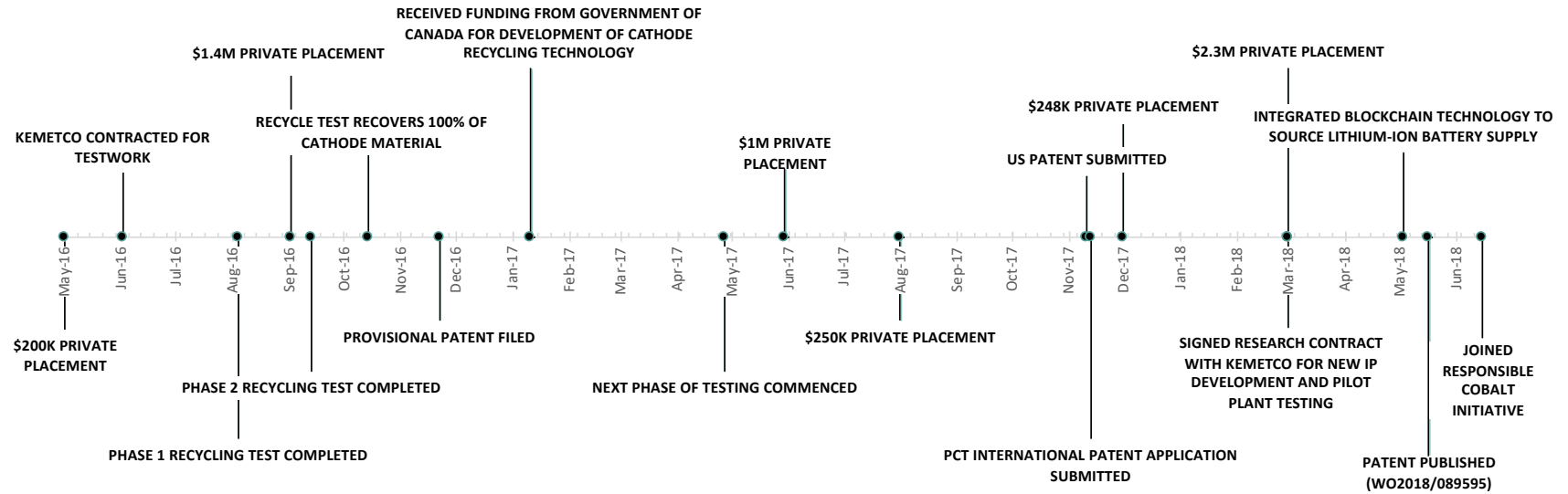


Figure 6 - Completed Milestones

Future Milestones:

- Complete Pilot Plant Testing – May 2019
- Construct 3 TPD Demonstration Plant – 2020
- Develop Commercial Plant – TBD



6. OPERATING PLAN

The company's patent pending process is the foundation to future plant scale-up operations and further Intellectual Property research. The flow sheet for the now-published patent is illustrated in Figure 7.

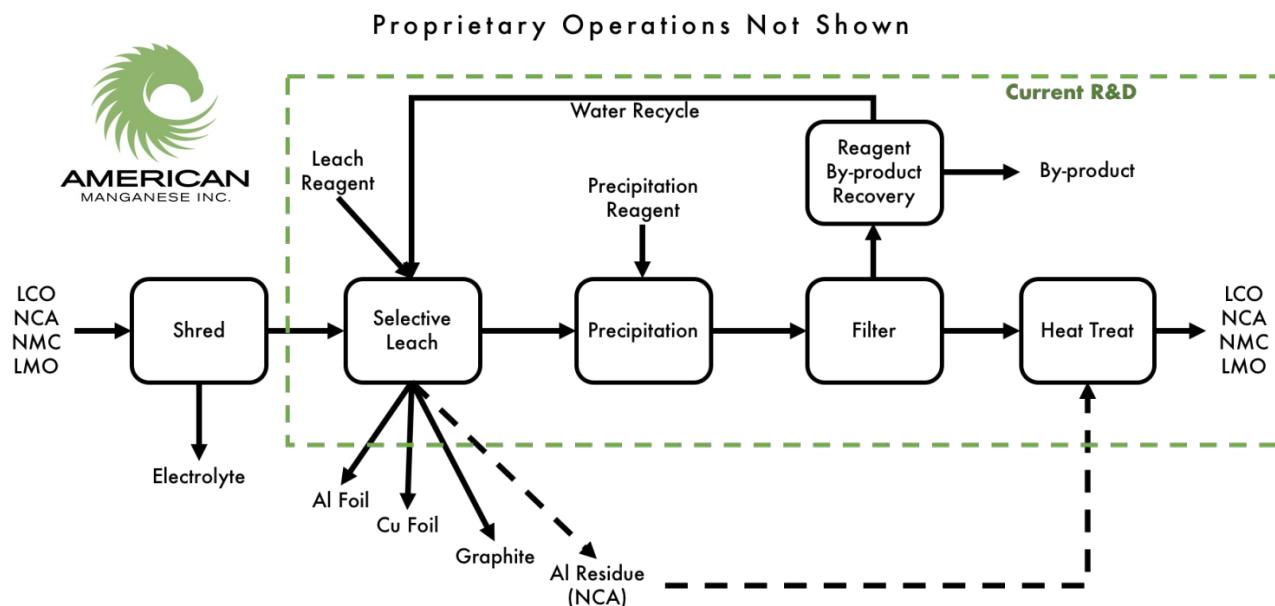


Figure 7 - American Manganese Inc. Battery Recycling Flow Sheet

The process treats cathode material containing a combination of lithium, cobalt, nickel, manganese, and aluminium. The cathode materials are treated with a novel combination of reagents and unit operations to provide high extraction, high purity, and minimum use of water. A base metal oxide is recovered separately from lithium carbonate. The base metal oxide is mixed with the lithium carbonate and heat treated to re-make recycled cathode materials. An itemization of the products during the process can be seen in Figure 8.

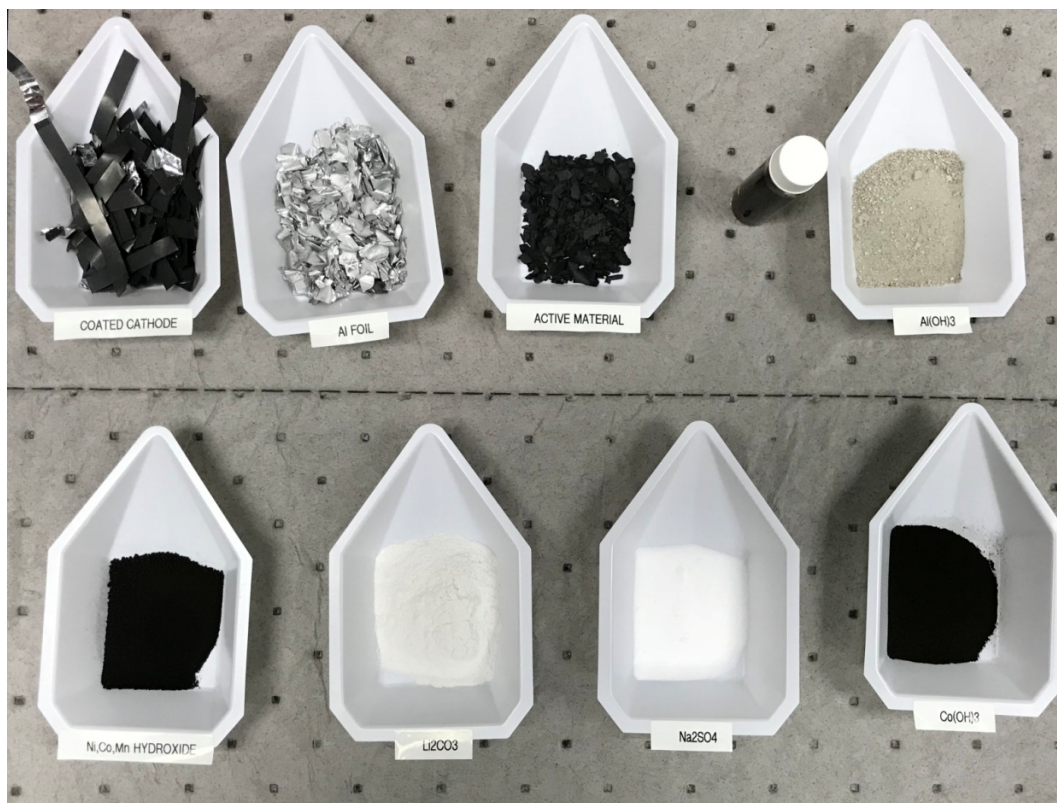


Figure 8 - Itemization from Cathode Scrap Recycling Tests

Proven cathode metal recovery process. Reports from Kemetco confirm that the AMY process is able to recover 100% of the cathode metals. Kemetco has developed the hydrometallurgical process in their well-equipped extractive metallurgy laboratory; the process will be further tested on the Pilot Plant with the material supplies mentioned in section 5.1.1 and 5.1.2. With their experienced staff, Kemetco is capable of carrying out testing, plant design and construction of both the Pilot Plant and Demonstration Plant. Kemetco's labs are in close proximity to AMY's office and a strong communications line is maintained between the two companies.

6.1. PILOT PLANT

AMY signed a research contract with Kemetco on February 16th, 2018 to continue work on new IP development and patents, as well as the engineering, design, construction, commissioning, installation and testing of the Pilot Plant. The total budget approved by the Company is



\$2,277,000, including contingencies. The Pilot Plant project is currently underway utilizing some specialized equipment at the Kemetco labs, as seen in Figure 9.



Figure 9 - Pilot Plant Equipment



The Pilot Plant construction and testing is projected to conclude by May 2019. The Pilot Plant will replicate real world closed-circuit conditions in a continuous operation to simulate and de-risk production of the Demonstration Plant in the next phase of operation. Demonstration Plant construction will not start until the Pilot Plant phase has concluded.

6.2. DEMONSTRATION PLANT

As mentioned in AMY's strategy, the Demonstration Plant's planned processing capacity would be 3 TPD because of the confirmed quantity of faulty scrap cathode material mentioned in section 5.1.1. With reference to Kemetco's extensive experience in plant design and construction, the Demonstration Plant's capital expenditure is estimated to be \$10 million. The estimated revenue generated during the operation of the Demonstration Plant, highlighted in the Financial Plan, would pay back the initial capital investment in 8 months, as a mid-point estimate.

The location of the Demonstration Plant is planned to be in the Greater Vancouver area. Construction would commence once Pilot Plant testing and data analysis has concluded, in order to ensure operating efficiency.

6.3. COMMERCIAL PLANT

The Company is actively pursuing global licensing agreements. AMY's focus is on agreements with large EV and LIB manufacturers that will have existing infrastructure in place to create a large-scale commercial LIB recycling operation, for which AMY would provide a closed-loop system directly on site. Since AMY's process is scalable, the maximum processing capacity would be subject to the manufacturer's stockpiling capacity.



7. MARKET ANALYSIS AND COMPETITION

Due to the decrease in lithium-ion battery costs, the demand for electric vehicles is on the rise and global demand for lithium-ion batteries is forecast to increase 18% annually to US\$46 billion in 2022 (Freedonia, 2018). Morgan Stanley predicts that EVs will outpace gasoline-powered vehicles in two decades. (Lambert, 2017) Recycling companies are preparing for the electric vehicle revolution by honing their processes to extract metals from spent lithium-ion batteries more affordably and efficiently in order to capitalize on an expected shortfall in metals such as cobalt when sales of electric vehicles take off (Reuters, 2017). In addition to the expected shortfalls, the United States Government has issued an Executive Order to ensure secure and reliable supplies of critical minerals and metals (such as the ones used in battery technology) as a strategy to reduce foreign dependence. Cobalt, lithium, manganese and aluminium – four of the five materials recovered by the AMY process -- are on the U.S. Government Critical Mineral List.

7.1. COBALT MARKET

Cobalt, an essential battery metal, has been one of the best performing metals since 2016 and has nearly tripled in price in the last two years, mainly thanks to the emerging EV market and personal electronics driving up the demand. Currently, rechargeable batteries constitute 55% of the global cobalt demand (BMO, 2018) over a variety of battery applications, as seen in Figure 10. An increase in EV sales and a continued growth of personal electronics will continue to increase the demand in cobalt.

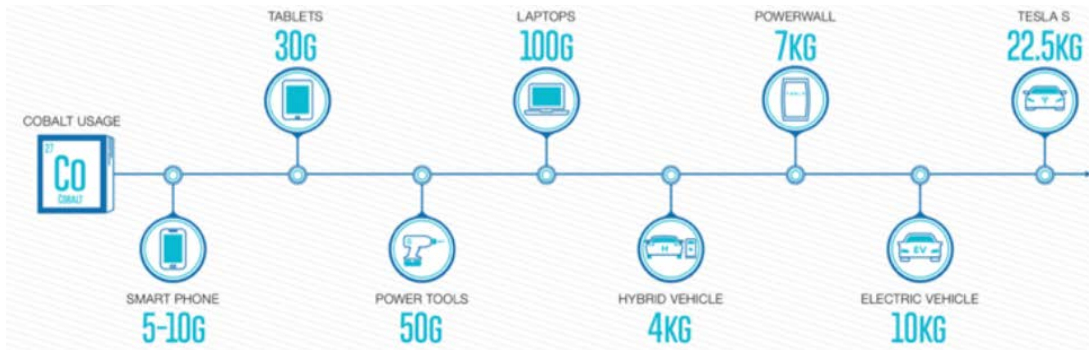


Figure 10 - Cobalt Use by Application (Seeking Alpha, 2018)

Coupled with the spike in demand, supply insecurity for cobalt is exacerbated by the fact that 97% of cobalt is mined as a by-product of copper and nickel mines, making cobalt vulnerable to copper and nickel market fluctuations. In addition, 60% of the global production of cobalt is contributed by the Democratic Republic of Congo, where political violence, increased government royalties, and child labour are making cobalt production uncertain for the growing cobalt supply chain.

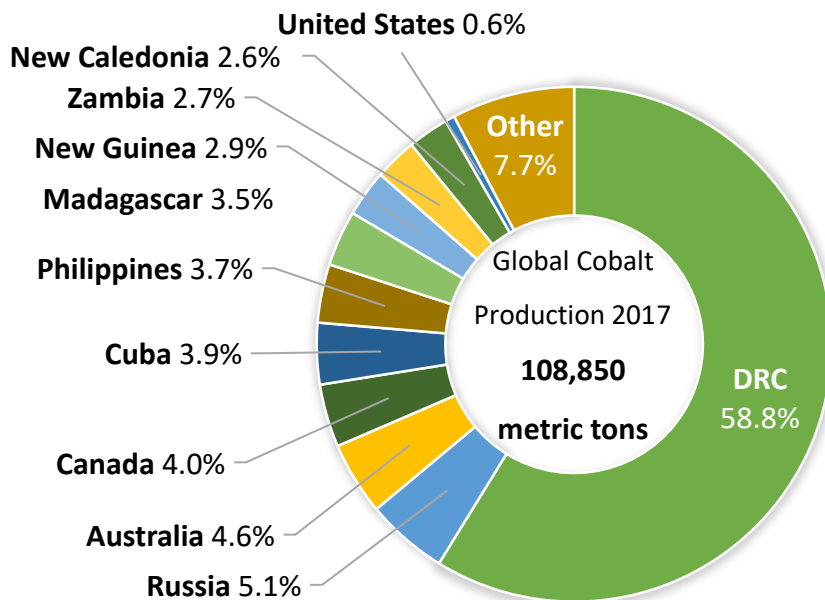


Figure 11 - Global Cobalt Production 2017 (USGS, 2017)



Major auto manufacturers have heavily invested into a new range of electric vehicle models and are looking to secure long term supplies of cobalt to use in their electric vehicle lithium-ion batteries (MINING, 2017). Despite the rise in demand from EVs, the cobalt market is already being squeezed by electronics manufacturing giants, such as Apple, who have been seeking to secure long-term supplies of cobalt directly from mining companies. With over 300 million iPhones, iPads, and MacBooks sold annually, Apple is estimated to need 4,500 tonnes of cobalt each year (Small Caps, 2018). That is just short of all the cobalt produced in Russia in 2017.

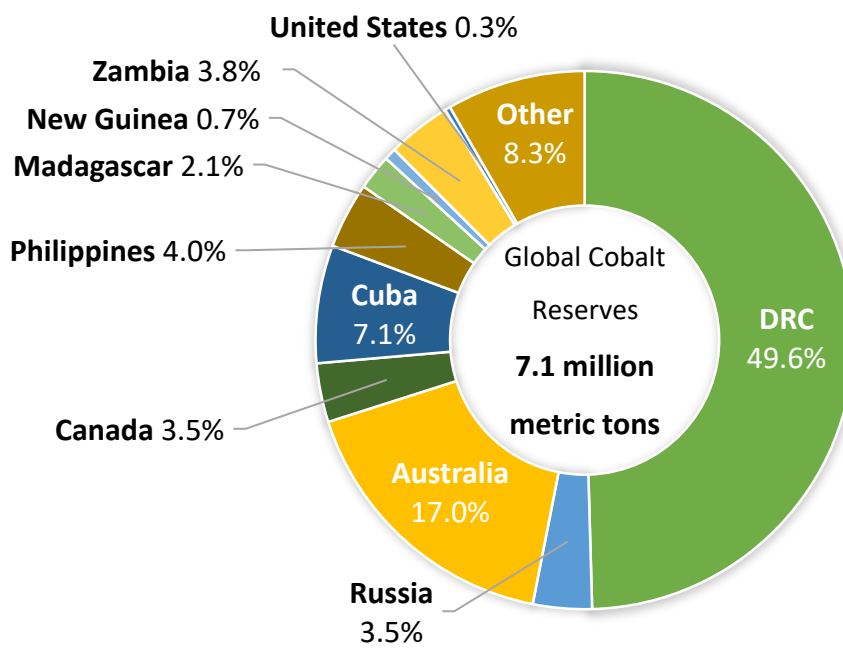


Figure 12 - Global Cobalt Reserves (USGS, 2017)

7.2. LITHIUM MARKET

Global demand of Lithium Carbonate Equivalent (LCE) was 184kt in 2015 and expected to reach 534kt by 2025, with more than a third of the demand credited to EVs as seen in Figure 13. Currently Argentina, Bolivia, and Chile – known as the “Lithium Triangle” -- account for 54% of the global lithium resources (Investing News, 2017). Lithium carbonate is produced from capital-intensive brine or hard rock mineral deposits, which will need to develop and increase production



quickly in order to respond to market demands. An additional delay is the processing of the material into a high purity battery grade lithium carbonate. Recycling spent LIBs would reduce mining impact, foreign dependence, and secure a quality supply of lithium carbonate.

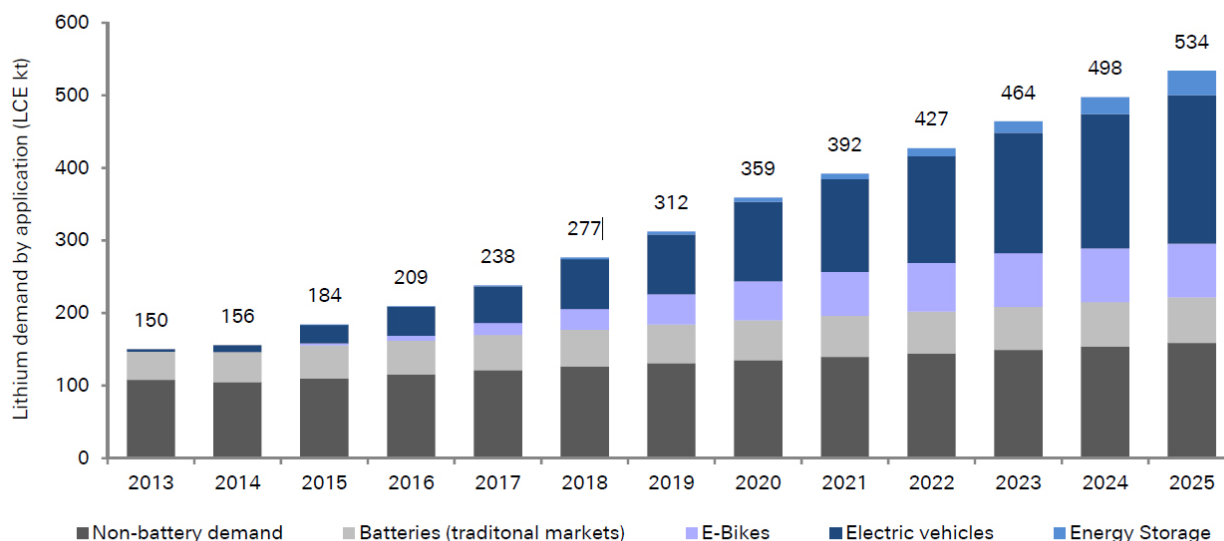


Figure 13 - Forecasted Lithium Demand by Application (Metals Tech, 2017)

7.3. BATTERY TECHNOLOGY

There is no standard lithium-ion battery used in EVs and each comes with a trade-off in specific Energy, specific power, safety, cost and performance that manufacturers will market their EV models with. Lithium and cobalt are required in many of the popular battery cathodes, as seen in Figure 14. While Lithium-Iron-Phosphate (LFP) and Lithium-Manganese-Oxide (LMO) configurations do not require cobalt, they are also not popular cathodes for EV batteries due to their low energy density. Existing EV battery packs either use a Nickel-Cobalt-Aluminum (NCA) or Nickel-Manganese-Cobalt (NMC) cathode. The NCA cathode is the preferred chemistry for Tesla, while manufacturers such as BMW, Nissan, and Chevrolet incorporate the NMC battery.

China is by far the largest market for EVs, representing 30% of global sales (BMO, 2018), and their top EV and LIB manufacturers, such as BYD, BAIC, and CATL have been utilizing the LFP battery



chemistry. However, China has introduced national subsidies that favor battery cathodes with increased energy density, which has encouraged these Chinese manufacturers to make the switch to the NMC battery (BMO, 2018).

The Lithium-Cobalt-Oxide (LCO) battery remains popular in personal electronic devices such as mobile phones and laptops due to its excellent energy density. However, its high percentage of cobalt makes it uneconomical for an EV.

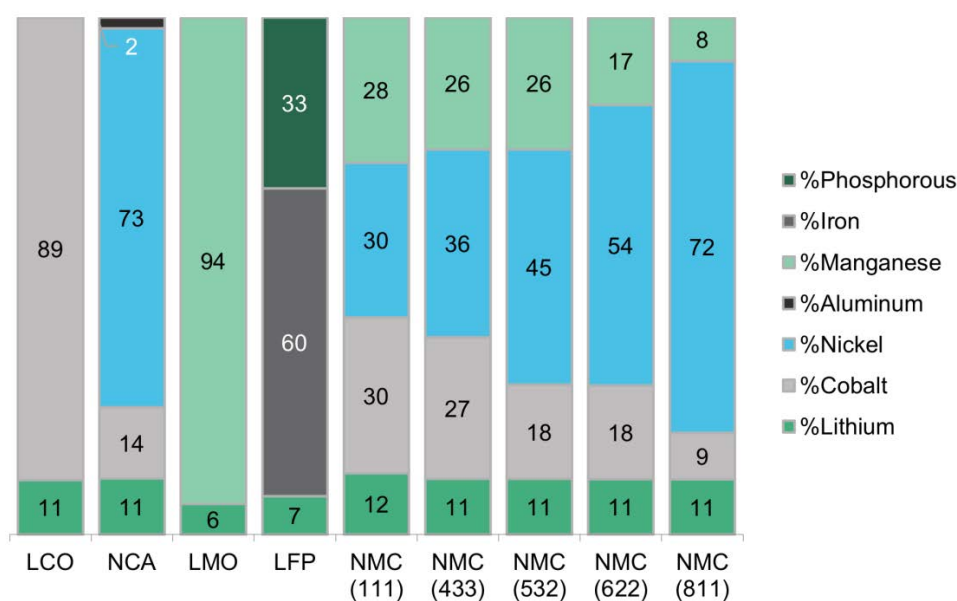


Figure 14 - Metal Composition in Popular Battery Chemistries (Bloomberg, 2017)

The battery industry is largely focused on changing the internal electrochemistry of existing LIBs, such as improving the electrodes and the electrolyte, in order to bring costs down and improve performance. Due to cobalt supply constraints, battery manufacturers are investigating opportunities to reduce cobalt content in the cathode, but not to entirely remove it because cobalt stabilizes the battery. For example, the NMC-111 is one-part nickel, one-part manganese, and one-part cobalt. By switching to an NMC-811, which is 80% nickel, 10% manganese, and 10% cobalt, manufacturers face the consequences of lower thermal stability and longevity as seen in Figure 15.

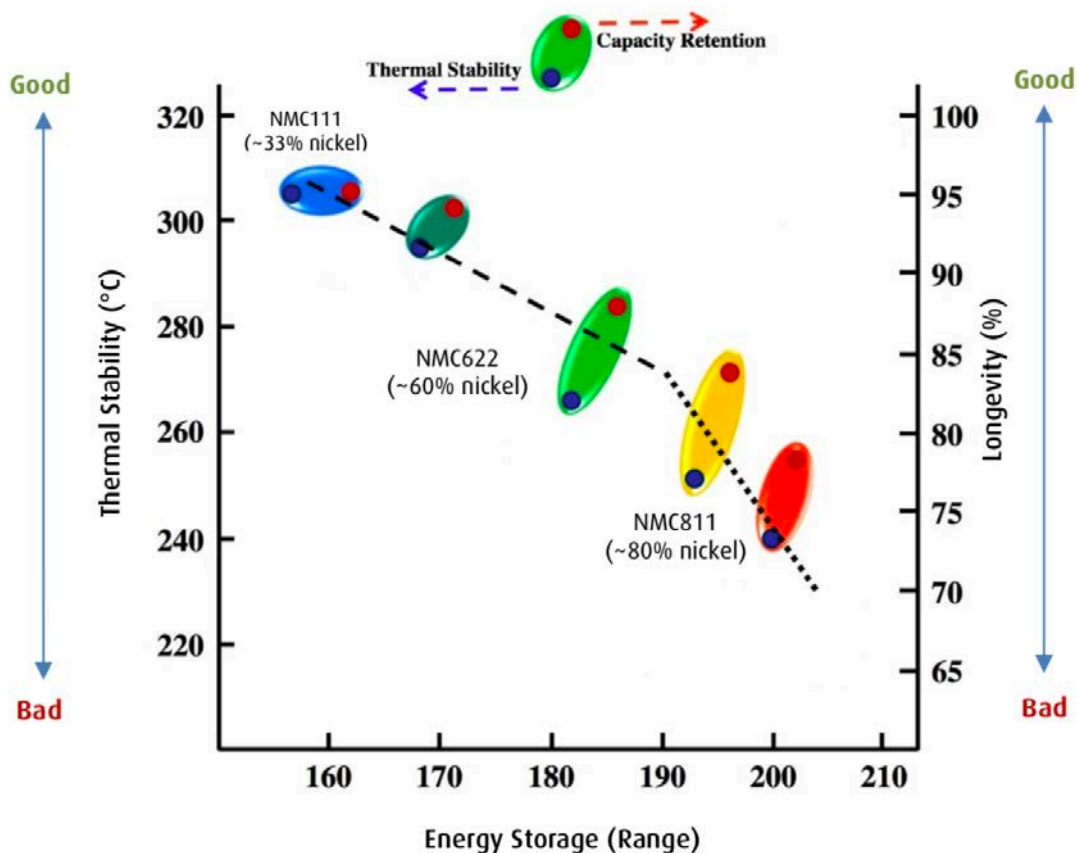


Figure 15 - Varying NMC Metal Composition (BMO, 2018)

In regards to solid state batteries, the innovation is in the anode and electrolyte. Therefore, the cathode chemistry does not change. These LIB innovations create more functionality and demand for the batteries, but it is not expected to affect the cathode recycling technology that AMY has developed.

However, the global capital expenditure trends are focused towards NMC and NCA battery infrastructure in order to improve on affordability and performance for the mass market. Therefore, LIB manufacturing costs are forecasted to come down to \$100/kWh by 2025, compared to \$1,000/kWh back in 2010 (Clean Technica, 2017). Lower costs will increase the commercial potential of EVs using NMC and NCA battery chemistries to compete with the internal combustion engine vehicle market, and as with other transformative technologies, lower cost options will spur new uses that drive overall material demand.



7.4. SPENT LITHIUM-ION BATTERIES AND LEGISLATION

The EV industry battery lifecycle benchmark is 1,000 full charge-and-discharge cycles. Depending on driving habits, the projected lifespan of an EV battery is expected to be 6-8 years. Therefore, the number of spent EV LIBs would follow the projected growth curve of EVs but be offset by 6-8 years. EV sale projections vary by source, but the underlying trend is that EV sales will increase at a similar rate to Figure 16, where sales are projected to reach 60 million EVs by 2040.

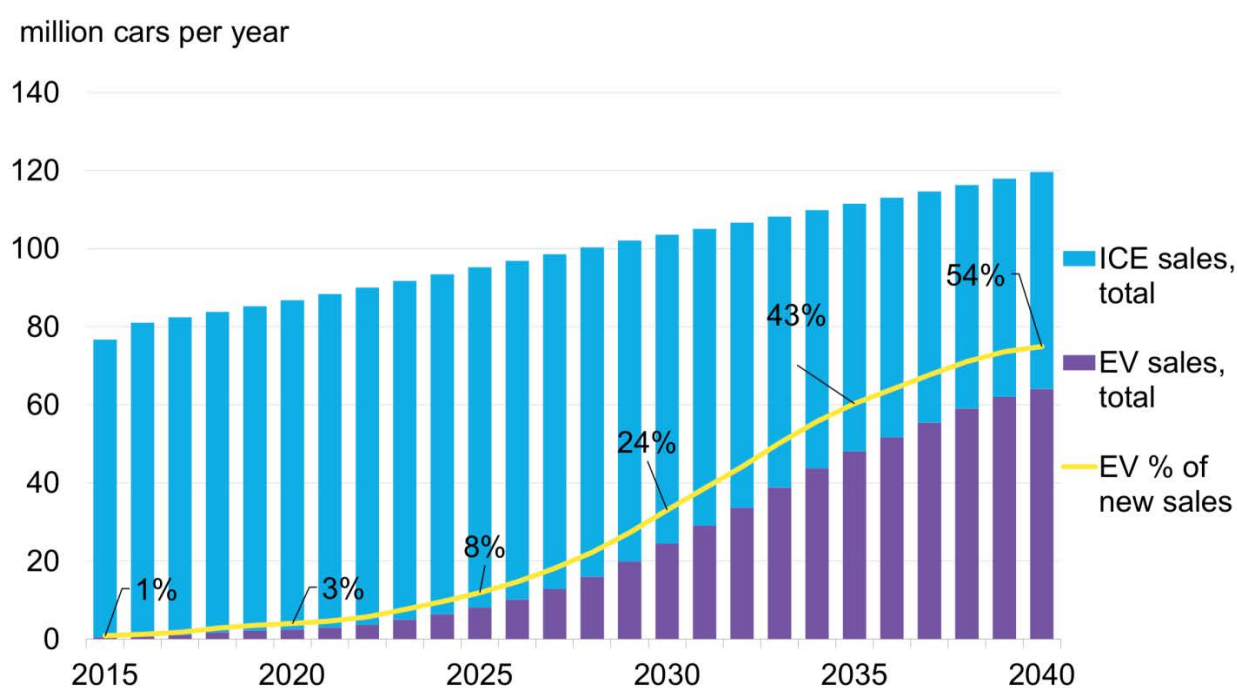


Figure 16 - Projected Electric Vehicle Sales (Bloomberg, 2017)

Recycling of spent LIBs is a certainty, thanks to ever-increasing regulations around the world. In China, legislation has been passed dictating that all Chinese EV manufacturers and importers must recycle used EV batteries. In Europe, the European Union has an EV battery recycling initiative called the European Union Battery Directive and the Canadian provinces of British Columbia, Quebec, and Manitoba all have mandatory recycling programs. Legislation in other parts of the world will continue to grow, and as the International Energy Agency (IEA) concludes



in their 2017 EV Forecast report, battery material recycling will become increasingly important and policies will need to be in place to deal with issues relating to battery ownership, transport, and recycling requirements (IEA, 2017). In addition, large enterprises are collaborating to identify and address ethical, environmental, human and labor rights issues in raw materials sourcing with organizations such as *Drive Sustainability* and the *Responsible Cobalt Initiative*.

7.5. COMPETITORS

Recycling competitors, such as Umicore, presently utilize a high cost pyrometallurgical technology to separate subject metals from spent batteries. Once the battery is melted down, what little metal is left gets recovered and the rest of the low-quality slag gets thrown into a landfill, losing any opportunity to extract valuable materials.

While there are other competitors using hydrometallurgical recovery methods, AMY believes it has been the most transparent by publicly disseminating its research results. Figure 17 outlines any publicly available information on competitors that the Company was able to access.

American Manganese continues to move forward in developing their process and reporting progress on a regular basis as the company advances from the existing Pilot Plant phase to commercialization.



AMERICAN MANGANESE INC. RECYCLING COMPETITORS

	PROOF OF CONCEPT	PATENTS	RECOVERIES		*RECOVERY METHOD
			COBALT	LITHIUM	
AMERICAN MANGANESE INC. SURREY, B.C. CANADA	Completed	Patent Published May 17, 2018 Publication No. W02018/089595	100%	100%	Hydro Metallurgy
RETRIEVE TECHNOLOGIES	Completed	Not Found	Small Amount Not Recovered	Not Recovered	Hydro Metallurgy
WORCESTER POLYTECHNIC INSTITUTE (BATTERY RESOURCES)	Completed	US Patent Application Applied for: November 22, 2016	Not Reported	Not Reported	Hydro Metallurgy
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA	Completed	Not Found	< 25%	< 50%	Hydro Metallurgy Plus High Cost Calcining
NEOMETALS LTD.	Completed	Patent Pending	99.2%	Not Reported	Hydro Metallurgy
UNIVERSITY OF CALIFORNIA SAN DIEGO	Completed	Not found	Not Reported	Not Reported	Heat Treating
UMICORE	Current Method of Disposal of Most Batteries	Not Patentable	40 - 70% Not Reusable in Batteries	Nil	High Cost of Smelting 'Not Environmentally Responsible'

**Management & Kemetco's Examination of recycling and Hydro Metallurgy of our competitors has shown no overlapping chemistries with our Technology. American Manganese's process strongly suggests leadership in the Competing Technologies*

Figure 17 - Recycling Technology Competitors

Research for lithium-ion battery recycling is ongoing worldwide, and the first group to successfully commercialize its recycling technology will set the standard for the emerging market. Recognized by institutions such as Bloomberg, AMY holds a strong position in lithium-ion battery recycling. For instance, during Samsung SDI's announcement to source cobalt from old phone batteries, Samsung SDI mentioned AMY as one of the leading recyclers for lithium-ion batteries (Bloomberg, 2018). Other literature and patent searches confirm that AMY's patent pending process for recycling cathode metals is unique technology.



7.6. SECOND LIFE BATTERIES

Second life batteries are the repurposing of EV batteries that may no longer be effective in an EV, but may have purpose for another application. The most likely use of EV second life batteries at the moment is in home energy storage. The problem with this business model is that the used batteries are less energy dense and cannot hold as much energy as they used to. You would need more batteries to store as much energy, taking up more physical space and raising costs. Manufacturers are also unable to guarantee their performance as easily as with a new battery (chinadialogue, 2018).

A representative of Mercedes-Benz Energy said there is no benefit to basing home energy storage systems on automotive batteries, in the medium or long term. It was also added that the highly complex automotive battery system far exceeds the value required for the home storage market (Energy Storage, 2018).

Second life batteries are not eliminating the need for battery recycling. Instead it is tying up the supply of critical metals needed for new EV batteries.



8. OWNERSHIP AND MANAGEMENT

American Manganese Inc. is listed on the TSX Venture Exchange in Canada under the ticker symbol “AMY”; on the Frankfurt Stock Exchange under “2AM”; and on the OTC US under “AMYZF”. Currently, the Company has approximately 165 million issued and outstanding shares, as well as 37.3 million warrants and options shares. As of July 11, 2018, the Company’s market capitalization is \$27 million. Regulatory filings for the Company can be found under its profile at www.sedar.com. The Company’s shares are widely held.

The Company’s board of directors and officers are:



Larry W. Reaugh - President & CEO, Director

Larry Reaugh has 55+ years’ experience in the mining industry and for the past forty years he has been the CEO and President of several exploration, development and production companies including 12 years in internet and technology breakthroughs listed on the TSX, TSX Venture and NASDAQ exchanges. Several of his companies have made significant discoveries, three of which (gold/silver) went on to be producing mines. Mr. Reaugh founded American Manganese Inc. in 1998 and has served as its President and CEO since that time. Through his career, Mr. Reaugh has raised in excess of \$300 million.



Shaheem Ali - BBA, Chief Financial Officer

Shaheem Ali is a finance and business management professional with 10 years’ experience in operations management, full cycle accounting, systems development and people management. Proven record of implementing financial and operational processes reducing operations costs and improved internal controls with Alderwoods Group Inc. where his experience includes governance and regulatory fund compliance with various states.



Teresa Piorun - Senior Corporate Officer

Teresa Piorun has been with the Reaugh group of companies for thirty-three years. Ms. Piorun is a senior corporate officer with wide-ranging responsibilities, serving as a focal point for communication with the board of directors, senior management and the company's shareholders, and occupies a key role in the administration of critical corporate matters. She is the confidant and advisor to the CEO and other members of senior management, particularly on corporate governance affairs



Norman L. Tribe - B.A.Sc., P.Eng., Director

Norman Tribe is the president and principal of N. Tribe & Associates Ltd a geological contractor serving the mining industry for fifty-eight years. Mr. Tribe has a total of 58 years' experience in most phases of mining and reporting to the various government entities and stock exchanges.



Andris Kikauka - P.Geo, Director

Andris Kikauka is a graduate of Brock University, St. Catharines, Ont., with an Honours Bachelor of Science Degree in Geological Sciences, 1980. He is a member of the Geological Association of Canada. He is registered in the Province of British Columbia as a Professional Geoscientist.



Jan Eigenhuis - Director

Jan Eigenhuis is a former senior executive at Manganese Metal Company of South Africa (MMC). He currently acts as a consultant to the electrolytic manganese industry worldwide. It is notable that he counts MMC as well as the Chinese manganese producers as clients. Mr. Eigenhuis is a graduate of the University of Pretoria; B.Sc. (Chem. & Math.) and the University of South Africa; MBL (Master Business Leadership). He has 30 years of business experience in mineral beneficiation and in the electrolytic manganese metal industry.



Ed Skoda - Director

Edward Skoda obtained a Diploma in Mining Engineering Technology from the Haileybury School of Mines in Ontario in 1971 and a Diploma in Business Management from the British Columbia Institute of Technology in 1979. Mr. Skoda has over 30 years of experience in the mining industry in which time he has worked on many national and international projects.



Kurt Lageschulte - Director

Kurt Lageschulte is a Partner and Senior Analyst at Broadbill Investment Partners, LLC in New York. Broadbill Partners is an investment firm with offices in New York, Florida and California and currently has \$130 million of assets under management across four managed funds. Kurt is a founding partner at Broadbill, and was previously employed as a Senior Analyst with Aspen Advisors from 2002 to 2010. Kurt has worked as an advisor and active member of a number of committees. Most recently, he has advised the Special Committee of the Penn Treaty American Company board in a complex negotiation with industry regulators. Kurt's experience in the energy, renewable and mining industries, coupled with significant expertise in the capital markets will enable Kurt and the Broadbill team to help American Manganese in the reaching of its goals in the coming years.



Shailesh Upreti - Advisory Board

Shailesh Upreti is a well-respected lithium-ion technology expert and inventor of multiple breakthrough technologies. An IIT Delhi graduate, Mr. Upreti has worked closely with Professor Stan Whittingham in the past and holds multiple US patents and their foreign equivalents in more than 30 countries. In addition to his technical degree he has a second masters in international business management in combination with extensive experience as an entrepreneur. Shailesh has successfully brought more than 5 different technologies to market including one in the material recycling space. His 16 years of extensive experience includes bringing new products to market, business development, lithium-ion supply chain & industry networking, downstream processing and investigating organizational



performance gaps. He is well integrated into the global battery industry and serves on various advisory boards. Shailesh is particularly adept in defining corporate commercial objectives, business support programs and achieving organizational goals while bringing new technology to market.



David Langtry - Technical Advisor

David Langtry has been a businessman since 1964 when he joined Langtry Agencies, a company which expanded nationally to become Langtry Industries and was sold in 2011 to ITOCHU, a Japanese conglomerate specializing in commodities. Mr. Langtry currently owns and operates Raider Hansen Inc., an industrial supplies company having 10 locations throughout British Columbia, as well as GRE Manufacturing, a glass recycling company. He also holds 10 worldwide patents. Mr. Langtry has a life time of experience in technology and financial markets.



Daniel McGroarty - Strategic Advisor

Daniel McGroarty has consulted for nearly two decades to firms in the resource sector, with a focus on strategic and critical metals. He is principal of the non-profit American Resource Policy Network, a resource development think tank. He has served as a critical materials subject-matter expert for the U.S. GAO; testified before the energy and natural resource committees of the U.S. House and Senate; consulted to the Institutes for Defense Analyses, which provides research and analytical work to the U.S. Department of Defense for its National Defense Stockpile reports; and currently serves as Adjunct Professor at The George Washington University Graduate School of Political Management. Prior to establishing his consultancy, Dan served as Special Assistant to the President in the White House and as presidential appointee to two Secretaries of Defense.



James J. (Jim) Hahn - Advisory Board

Jim comes from a career of 40+ years in the Specialty Tool and Fastener Industry. He has held management positions in patented product development to include Powder Actuated Fasteners, Adhesives, and Coatings. Additionally, he has worked domestically and internationally in the development of Concrete Anchoring Systems leading to successful market introductions. These introductions were attained through independent product testing to meet strict industry codes and final evaluation agency approvals.

At Hilti, Inc. Jim achieved the highest level of sales locally, regionally and nationally. He was awarded multi-million-dollar sales club recognition for his work with a previously poor-performing territory and was recognized multiple times as a President Club's winner at national conventions, having set regional and national sales records annually. Jim received a special award from ITW Corporation for the development of a national training program for certain industrial products. He was a founding member of the Concrete Anchoring Manufacturing Association in 1996. Last but not least, Jim was a PGA professional golfer after he graduated from college where he earned an AA degree in Applied Marketing and a BA in Business Administration.



9. APPENDIX A – FINANCIAL MODELS

9.1. LCO BATTERY CHEMISTRY

9.1.1. ESTIMATED ANNUAL OPERATING PROFIT

Table 4 - Annual Gross Profit for LCO Recycling at 3 TPD (June 28, 2018)

Metal	Market Price (USD/kg)	LCO (kg)	Total (USD)
Lithium Carbonate	\$17.00	1,132	\$7.03 M
Cobalt	\$79.00	1,806	\$52.09 M
Nickel	\$14.70	0	\$0 M
Manganese	\$2.03	0	\$0 M
Aluminium	\$2.20	0	\$0 M
Total Annual Revenue			\$59.11 M
Annual Operating Expenses			
Reagents	\$1.07 M		
Labour and G&A	\$3.26 M		
Utilities	\$0.13 M		
Feed Material Delivered	\$5.91 M		
Maintenance	\$0.53 M		
Building Rent	\$0.18 M		
Shipping & Packaging	\$0.68 M		
Total Annual Operating Expense	\$11.76 M		
Annual Operating Profit	\$47.36 M		
Operating Margin	80%		

9.1.2. NET PRESENT VALUE

Table 5 - NPV for LCO Recycling (June 28, 2018)

Interest Rate	10%	
Period	Cashflow	Balance
Year 0	\$ (10.0)M	\$ (10.0)M
Year 1	\$ 47.4 M	\$ 37.4 M
Year 2	\$ 47.4 M	\$ 84.7 M
Year 3	\$ 47.4 M	\$ 132.1 M
NPV	Payback	IRR
\$107.77 M	2.6 Months	471%



9.1.3. SENSITIVITY ANALYSIS

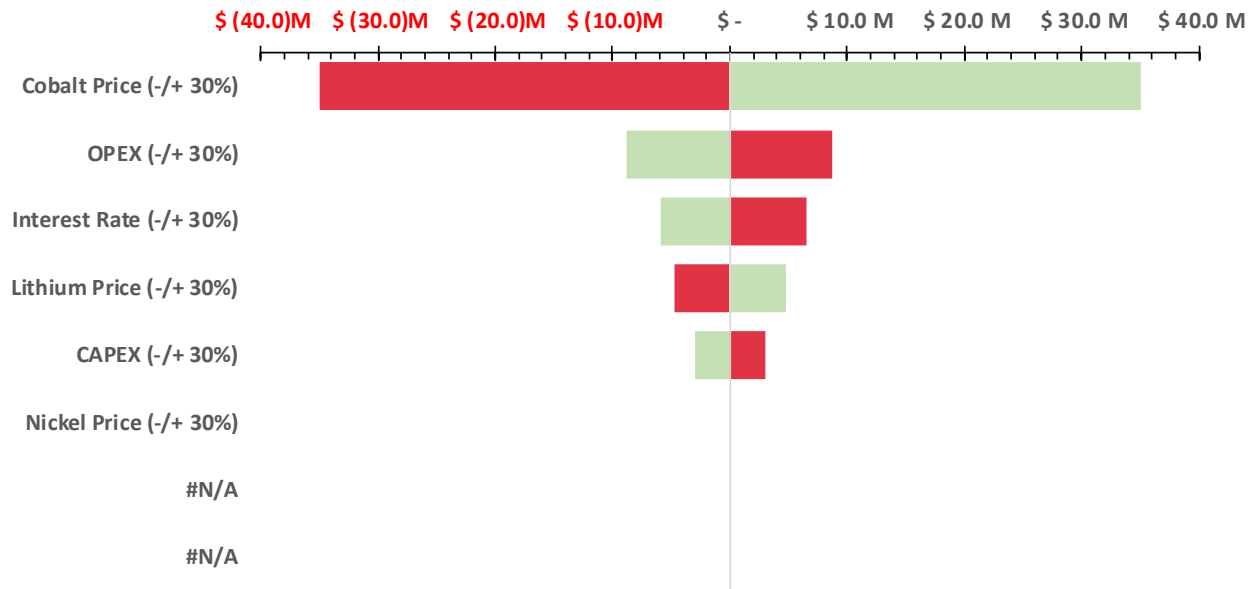


Figure 18 - Impact on NPV by Change in Variable (LCO)



9.2. NMC-111 BATTERY CHEMISTRY

9.2.1. ESTIMATED ANNUAL OPERATING PROFIT

Table 6 - Annual Gross Profit for NMC-111 Recycling at 3 TPD (June 28, 2018)

Metal	Market Price (USD/kg)	NMC111 (kg)	Total (USD)
Lithium Carbonate	\$17.00	1,149	\$7.13 M
Cobalt	\$79.00	611	\$17.62 M
Nickel	\$14.70	608	\$3.26 M
Manganese	\$2.03	570	\$42 M
Aluminium	\$2.20	0	\$0 M
Total Annual Revenue			\$28.43 M
Annual Operating Expenses			
Reagents	\$1.07 M		
Labour and G&A	\$3.26 M		
Utilities	\$0.13 M		
Feed Material Delivered	\$2.84 M		
Maintenance	\$0.53 M		
Building Rent	\$0.18 M		
Shipping & Packaging	\$0.68 M		
Total Annual Operating Expense	\$8.69 M		
Annual Operating Profit	\$19.74 M		
Operating Margin	69%		

9.2.2. NET PRESENT VALUE

Table 7 - NPV for NMC-111 Recycling (June 28, 2018)

Interest Rate		10%
Period	Cashflow	Balance
Year 0	\$ (10.0)M	\$ (10.0)M
Year 1	\$ 19.7 M	\$ 9.7 M
Year 2	\$ 19.7 M	\$ 29.5 M
Year 3	\$ 19.7 M	\$ 49.2 M
NPV	Payback	IRR
\$39.1 M	6.1 Months	189%



9.2.3. SENSITIVITY ANALYSIS

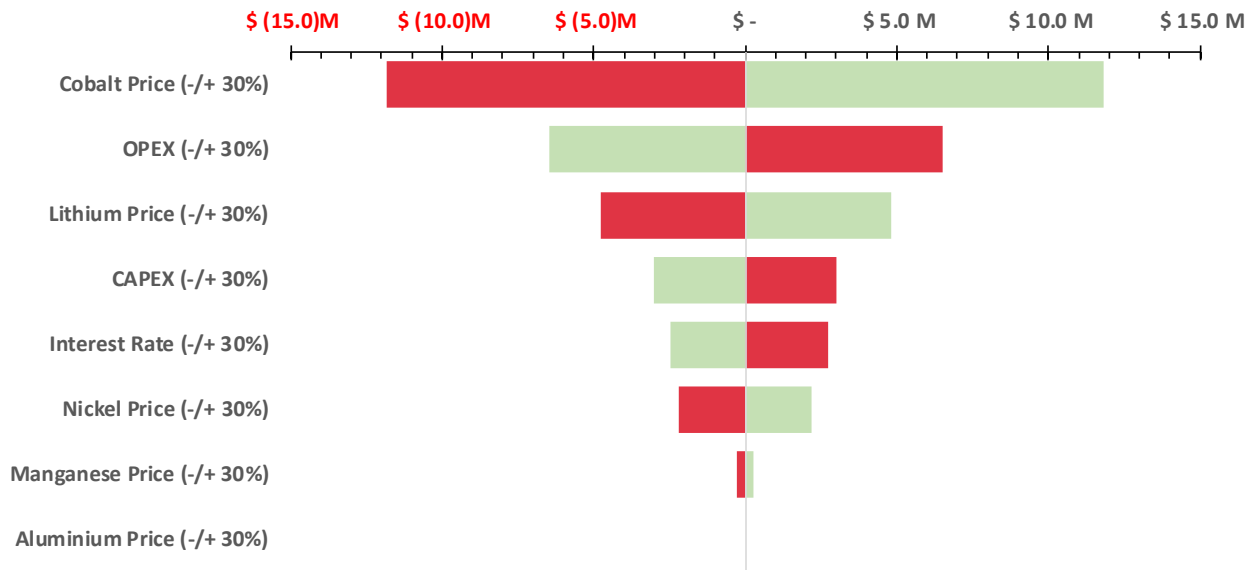


Figure 19 - Impact on NPV by Change in Variable (NMC-111)



9.3. NMC-811 BATTERY CHEMISTRY

9.3.1. ESTIMATED ANNUAL OPERATING PROFIT

Table 8 - Annual Gross Profit for NMC-811 Recycling at 3 TPD (June 28, 2018)

Metal	Market Price (USD/kg)	NMC811 (kg)	Total (USD)
Lithium Carbonate	\$17.00	1,139	\$7.07 M
Cobalt	\$79.00	182	\$5.24 M
Nickel	\$14.70	1,448	\$7.77 M
Manganese	\$2.03	169	\$.13 M
Aluminium	\$2.20	0	\$.0 M
Total Annual Revenue			\$20.2 M
Annual Operating Expenses			
Reagents	\$1.07 M		
Labour and G&A	\$3.26 M		
Utilities	\$0.13 M		
Feed Material Delivered	\$2.02 M		
Maintenance	\$0.53 M		
Building Rent	\$0.18 M		
Shipping & Packaging	\$0.68 M		
Total Annual Operating Expense	\$7.87 M		
Annual Operating Profit	\$12.34 M		
Operating Margin	61%		

9.3.2. NET PRESENT VALUE

Table 9 - NPV for NMC-811 Recycling (June 28, 2018)

Interest Rate		
10%		
Period	Cashflow	Balance
Year 0	\$ (10.0)M	\$ (10.0)M
Year 1	\$ 12.3 M	\$ 2.3 M
Year 2	\$ 12.3 M	\$ 14.7 M
Year 3	\$ 12.3 M	\$ 27.0 M
NPV	Payback	IRR
\$20.68 M	9.8 Months	110%



9.3.3. SENSITIVITY ANALYSIS

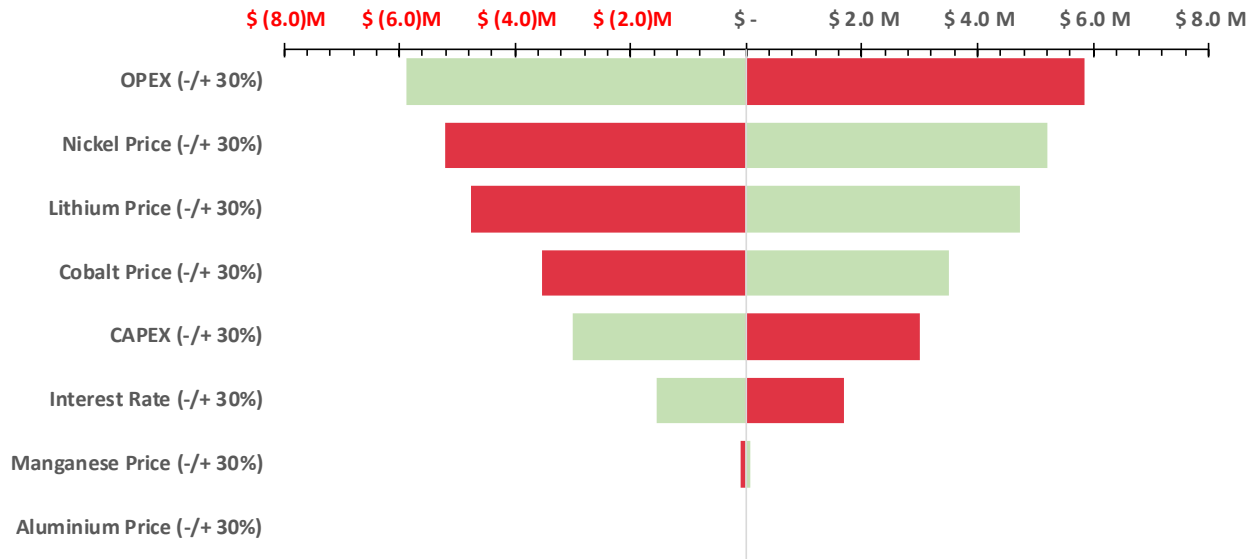


Figure 20 - Impact on NPV by Change in Variable (NMC-811)



9.4. NCA BATTERY CHEMISTRY

9.4.1. ESTIMATED ANNUAL OPERATING PROFIT

Table 10 - Annual Gross Profit for NCA Recycling at 3 TPD (June 28, 2018)

Metal	Market Price (USD/kg)	NCA (kg)	Total (USD)
Lithium Carbonate	\$17.00	1,154	\$7.16 M
Cobalt	\$79.00	276	\$7.96 M
Nickel	\$14.70	1,466	\$7.87 M
Manganese	\$2.03	0	\$0.0 M
Aluminium	\$2.20	42	\$0.03 M
Total Annual Revenue			\$23.02 M
Annual Operating Expenses			
Reagents	\$1.07 M		
Labour and G&A	\$3.26 M		
Utilities	\$0.13 M		
Feed Material Delivered	\$2.3 M		
Maintenance	\$0.53 M		
Building Rent	\$0.18 M		
Shipping & Packaging	\$0.68 M		
Total Annual Operating Expense	\$8.15 M		
Annual Operating Profit	\$14.87 M		
Operating Margin	65%		

9.4.2. NET PRESENT VALUE

Table 11 - NPV for NCA Recycling (June 28, 2018)

Interest Rate	10%	
Period	Cashflow	Balance
Year 0	\$ (10.0)M	\$ (10.0)M
Year 1	\$ 14.9 M	\$ 4.9 M
Year 2	\$ 14.9 M	\$ 19.7 M
Year 3	\$ 14.9 M	\$ 34.6 M
NPV	Payback	IRR
\$26.97 M	8.1 Months	138%



9.4.3. SENSITIVITY ANALYSIS

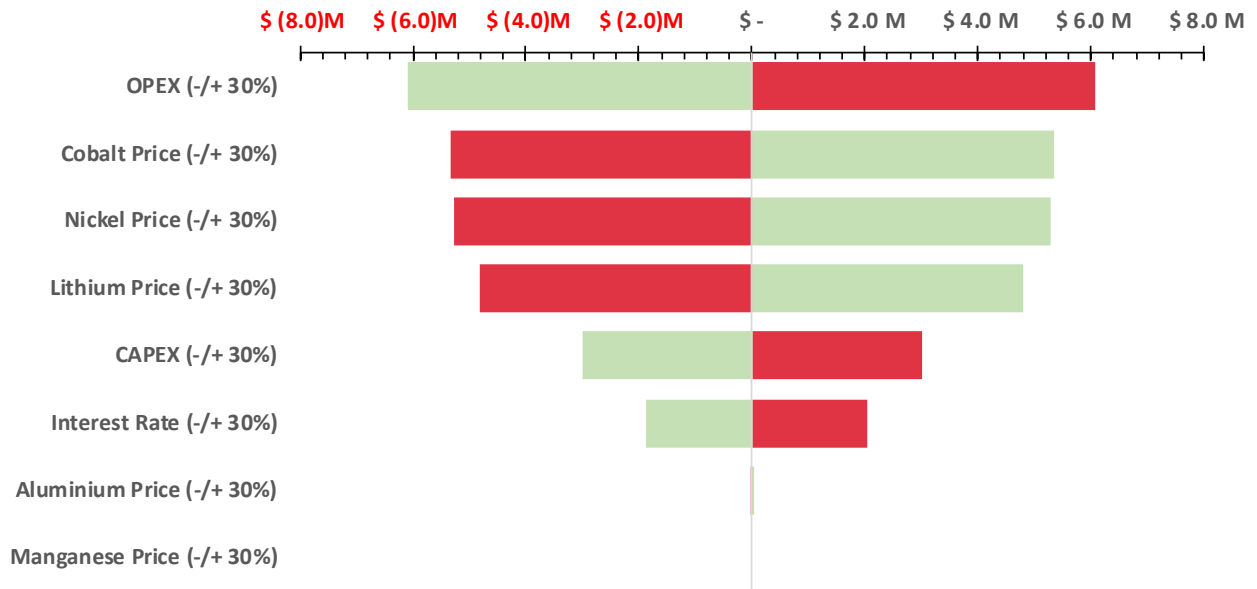


Figure 21 - Impact on NPV by Change in Variable (NCA)



10. APPENDIX B – FINANCIAL STATEMENTS

AMERICAN MANGANESE INC.

Consolidated Statements of Financial Position

As at July 31, 2017 and July 31, 2016

(Expressed in Canadian dollars, unless specifically indicated otherwise)

	July 31, 2017	July 31, 2016
Assets		
Current		
Cash and cash equivalents	\$ 486,088	\$ 78,434
Amounts receivable (Note 6)	66,087	34,986
Prepaid expenses	233,541	34,048
	785,716	147,468
Non-current		
Reclamation deposits	38,772	39,919
Exploration and evaluation assets (Note 8)	5,021,687	5,210,964
Total assets	\$ 5,846,175	\$ 5,398,351
Liabilities		
Current		
Accounts payable and accrued liabilities (Note 6)	\$ 374,952	\$ 820,741
Payable to related parties (Note 7b)	7,093	152,382
Total liabilities	382,045	973,123
Equity		
Share capital (Note 9)	\$ 25,772,440	\$ 23,933,531
Prepaid share subscriptions	5,500	-
Share-based payments reserve	4,102,225	3,627,551
Warrants reserve	4,126,613	3,182,502
Accumulated other comprehensive income	2,166,639	2,383,997
Deficit	(30,709,287)	(28,702,353)
Total equity	5,464,130	4,425,228
Total liabilities and equity	\$ 5,846,175	\$ 5,398,351

Nature and Continuance of Operations (Note 1)

Commitments (Note 13)

Subsequent events (Note 16)

The accompanying notes are an integral part of these consolidated financial statements

Approved on behalf of the Board of Directors and authorized for issue on November 28, 2017

Larry W Reaugh Director

Michael MacLeod Director



AMERICAN MANGANESE INC.

Consolidated Statements of Comprehensive Loss

For the years ended July 31, 2017 and 2016

(Expressed in Canadian dollars, unless specifically indicated otherwise)

	2017		2016	
Expenses				
Administration (Note 10)	\$	2,003,919	\$	308,566
Loss from operations		2,003,919		308,566
Finance income		(86)		(32)
Foreign exchange loss		3,101		-
Gain on sale of marketable securities		-		(30,264)
Impairment of mineral properties		-		532,000
Loss for the year		2,006,934		810,270
Other comprehensive loss				
Foreign currency gain (loss) on translation of subsidiary	\$	(217,358)	\$	3,641
(Realized) unrealized gain on marketable securities		-		(37,400)
Other comprehensive loss for the year		(217,358)		(33,759)
Total comprehensive loss for the year		2,224,292		844,029
Basic and diluted loss per share	\$	(0.01)	\$	(0.01)
Weighted average shares outstanding (basic and diluted)		138,141,848		116,561,154



AMERICAN MANGANESE INC.

Consolidated Statements of Changes in Equity

For the years ended July 31, 2017 and 2016

(Expressed in Canadian dollars, unless specifically indicated otherwise)

	Number of shares (Note 9)	Share capital (Note 9)	Prepaid share subscriptions	Share-based payments reserve (Note 9)	Warrants reserve (Note 9)	Deficit (Note 9)	Accumulated other comprehensive income (loss) (Note 9)	Total equity
Balance, July 31, 2015	112,725,880	\$ 23,897,993	\$ -	\$ 3,535,273	\$ 2,997,040	\$ (27,892,083)	\$ 2,417,756	\$ 4,955,979
Share-based compensation	-	-	-	92,278	-	-	-	92,278
Issued for services	1,800,000	27,000	-	-	-	-	-	27,000
Issued pursuant to private placement	10,025,000	200,500	-	-	-	-	-	200,500
Cost of share issuance	-	(6,500)	-	-	-	-	-	(6,500)
Warrants issued with private placement	-	(185,462)	-	-	185,462	-	-	-
Loss for the year	-	-	-	-	-	(810,270)	-	(810,270)
Other comprehensive income (loss) for the period	-	-	-	-	-	-	(33,759)	(33,759)
Balance, July 31, 2016	124,550,880	\$ 23,933,531	\$ -	\$ 3,627,551	\$ 3,182,502	\$ (28,702,353)	\$ 2,383,997	\$ 4,425,228
Share-based compensation	-	-	-	582,032	-	-	-	582,032
Issued pursuant to private placements	15,290,316	2,349,505	-	-	-	-	-	2,349,505
Cost of share issuance	-	(156,843)	-	-	-	-	-	(156,843)
Warrants issued with private placement	-	(1,048,943)	-	-	1,048,943	-	-	-
Issued pursuant to options exercise	2,450,000	284,858	-	(107,358)	-	-	-	177,500
Issued pursuant to warrants exercise	5,509,999	410,332	-	-	(104,832)	-	-	305,500
Prepaid share subscriptions	-	-	5,500	-	-	-	-	5,500
Loss for the year	-	-	-	-	-	(2,006,934)	-	(2,006,934)
Other comprehensive income (loss) for the period	-	-	-	-	-	-	(217,358)	(217,358)
Balance, July 31, 2017	147,801,195	\$ 25,772,440	\$ 5,500	\$ 4,102,225	\$ 4,126,613	\$ (30,709,287)	\$ 2,166,639	\$ 5,464,130



AMERICAN MANGANESE INC.

Consolidated Statements of Cash Flows

For the years ended July 31, 2017 and 2016

(Expressed in Canadian dollars, unless specifically indicated otherwise)

	2017	2016
Cash flows used in operating activities		
Loss for the year	\$ (2,006,934)	\$ (810,270)
Items not affecting cash:		
Impairment of mineral properties	-	532,000
Stock based compensation	582,032	92,278
Gain on sale of marketable securities	-	(30,264)
Shares issued in lieu of cash	-	27,000
Net changes in non-cash working capital items related to operations:		
Amounts receivable	(31,101)	(3,411)
Prepaid expenses	(199,493)	(33,000)
Accounts payable and accrued liabilities	(445,789)	30,980
Payable to related parties	(145,289)	37,574
Net cash used In operating activities	(2,246,574)	(157,113)
Cash flows from (used in) investing activities		
Exploration and evaluation expenditures	(24,310)	(6,217)
Proceeds from sale of marketable securities	-	45,564
Net cash from (used in) investing activities	(24,310)	39,347
Cash flows from financing activities		
Net proceeds from issuance of shares	2,675,662	194,000
Prepaid share subscriptions	5,500	
Net cash from financing activities	2,681,162	194,000
Effect of foreign exchange rates on cash and cash equivalents	(2,624)	-
Increase in cash and cash equivalents	407,654	76,234
Cash and cash equivalents, beginning of the year	78,434	2,200
Cash and cash equivalents, end of the year	\$ 486,088	\$ 78,434



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