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Battery Metals Stocks Drain, But the Industry Outlook Remains Charged

Despite the growing attention the battery market is getting (with its implications within electric vehicles and energy storage), the metals market seems to diverge on price. The lithium companies in our index have declined 5.4% on average since the start of the year, whereas cobalt stocks have risen 39.3%. This compares to YTD ~1.0% decline in the TSX. It appears that lithium companies have performed poorly due to fears of oversupply in the global market. In this edition of the Battery Metals report, we provide some industry highlights, dive into demand determinants and how they are currently working in the industry's favour, and shine a spotlight on three companies that have had an interesting three months.

Industry Highlights

- **On June 17, 2017, Deutsche Bank released a statement saying that Mineral Resources (ASX:MIN) will reach a production level of 300,000 – 500,000 tonnes of ore per month**, and that the scale of this production puts downward pressure on spot prices of lithium. This is a common concern in the industry, due to the sheer amount of mining juniors entering the industry to try and capitalize on the growing demand for lithium. Paul Robinson, director at consultancy CRU Group, believes the concern with lithium is that there will be too much supply. He also stated we will end up with a mature market at some point but wonders how far prices must fall before this becomes a reality. Some experts, however, disagree with this statement and believe that the demand is so strong, and will grow so much that junior miners are needed in the industry to help supply catch up with demand.

- **Argentina is becoming the hub for lithium companies.** Argentinian president Mauricio Macri recently removed currency and capital controls taxes, which has led to 40 foreign companies considering opportunities in Argentina's mining industry, with more than half those being in lithium. Argentina's mining secretary Daniel Meilan says Albemarle (NYSE: ALB), and China's CITIC are among the groups looking at opportunities in Argentina, as part of a $20B pipeline of mining projects through 2025. If all the projects go ahead, Argentina's annual lithium output would increase to 165,000 tonnes.

- **First Cobalt Corp (TSXV:FCC) has proposed a friendly merger with Canada-focused Cobalt One (ASX:CO1)** to create what it says would be one of the largest cobalt exploration companies in the world. The agreement, signed in early-June, grants First Cobalt an option to acquire 50% of Cobalt One's cobalt assets in the Cobalt region of Ontario. The merger would consolidate the two largest land packages in the Cobalt camp into a single landholder with more than 10,000ha.

Industry Insights

Lithium Market

Lithium mining companies supply companies in the battery manufacturing industry, whose demand is determined by many factors. Some of the biggest factors that influence demand include:

- Demand for disposable lithium batteries, which power consumer products such as toys, cameras, etc. As per-capita disposable income rises the demand for these products goes up. And subsequently demand for lithium batteries, and lithium metals.
- Lithium demand is increasingly dependent on the demand for electric and hybrid vehicles. Tesla, Nissan, and Ford all use lithium-ion batteries and have established their own lithium-ion battery production facilities to reduce costs.
- Demand is dependent on levels of government spending on defense and energy infrastructure. Industry operators sell lithium-ion batteries to these sectors for use in military hardware, energy storage, and other machinery and equipment. Demand can also be supported by government regulation, as regulation encourages use of alternative forms of energy.

Revenue in the lithium battery industry is projected to grow at an annualized rate of 5.5% from 2017-2021, totaling $4.9B in 2021. The growth will be driven by the green movement that will continue to lead demand for electric vehicles and energy storage systems that use lithium-ion batteries.

Figure 1: Lithium-Ion Battery Industry Outlook

Revenue Outlook

Year	Revenue $ million	Growth %
2017	4,022.7	8.1
2018	4,162.8	3.5
2019	4,382.7	5.3
2020	4,596.2	4.9
2021	4,861.5	5.8
2022	5,071.8	4.3

Source: IBIS World

Notable Performers

Nemaska Lithium Inc. (TSX: NMX)

Nemaska Lithium is a late-stage lithium exploration company that intends to become a lithium hydroxide and lithium carbonate supplier to the emerging lithium battery market. The Company is currently developing a project in James Bay, Quebec on the Whabouchi property with the intention to develop high-purity lithium hydroxide and carbonate. The Company's stock is down 24% since our last report, likely due to project financing delays.

The 2016 feasibility study for the James Bay project found 5.5mm tonnes of spodumene concentrate converted into 728,000 tonnes of battery grade lithium hydroxide and 85,000 tonnes of battery grade lithium carbonate. They estimate initial capital costs of $549mm and an after-tax NPV of $1.16B with an IRR of 30.3%.

Figure 2: James Bay Project NPV

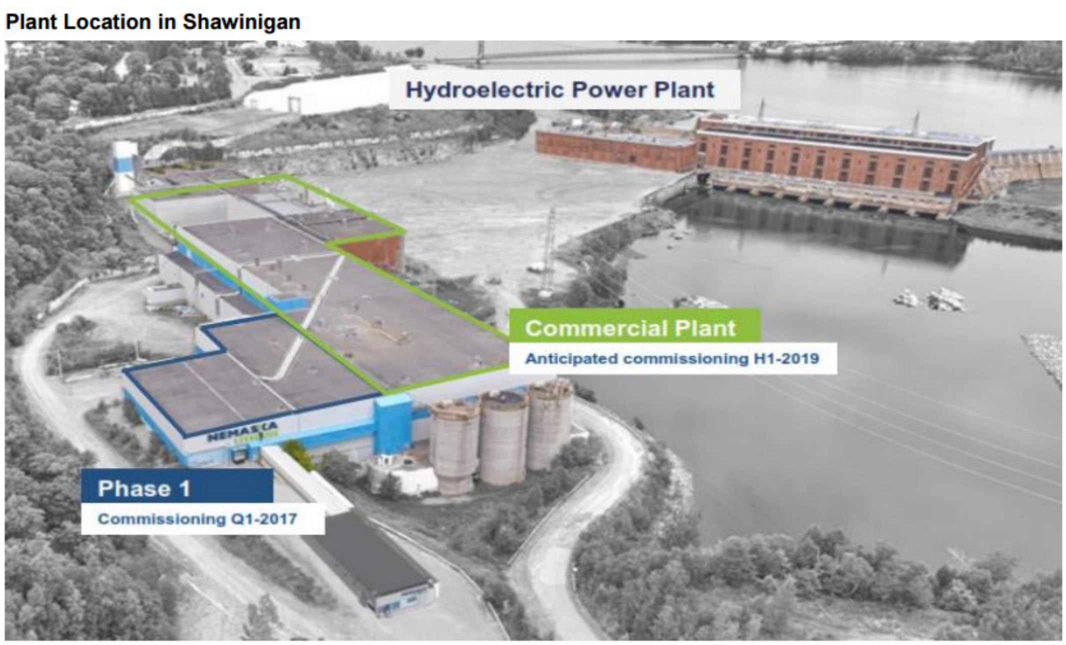
Mine Life and Pre-Tax Pay Back of Capital Costs	**26 years** with a **2.4 years pay back** period
Life of Mine Revenue	**$9.2** Billion (**US $7.4** Billion) (average of **$354 M/yr**)
Pre-Tax Net Undiscounted Cash Flow	**$6.2** Billion (**US $4.9** Billion) (average of **$260 M/yr** excluding initial CAPEX)
After-Tax Undiscounted Cash Flow	**$3.9** Billion (**US $3.1** Billion)
Pre-Tax NPV 8% Discount (base case)	**$1.9** Billion (**US $1.5** Billion)
After-Tax NPV 8%Discount (base case)	**$1.2** Billion (**US $924** Million)
Pre-Tax & After-Tax Internal Rate of Return (IRR)	Pre-Tax: **37.7%** and After-Tax: **30.3 %**
Total Initial Capital Costs	**$549 M** (**US $439 M**) in CAPEX including contingency of $56 M (**US $45 M**)
Selling Price Lithium Hydroxide	**US $9,500/t** FOB Shawinigan
Selling Price Lithium Carbonate	**US $7,000/t** FOB Shawinigan
Average Cost/tonne of Spodumene Concentrate	**$181/t** (**US $145/t**) FOB Whabouchi Mine
Average Cost/tonne of Lithium Hydroxide	**$2,693/t** (**US $2,154/t**) FOB Shawinigan
Average Cost/tonne of Lithium Carbonate	**$3,441/t** (**US $2,753/t**) FOB Shawinigan
Life of Mine Production	**5.5 M tonnes** (approx. **213k tonnes/year**) of spodumene concentrate converted into battery grade lithium hydroxide for approx. **714k tonnes** (**27.5k tonnes/year**) and approx. **84k tonnes** (**3.2k tonnes/year**) of lithium carbonate.
Exchange Rate $C to $US	**1 : 0.80**

Source: Company Filings

When the spodumene concentrate is extracted from the Whabouchi property it is sent to the Company's commercial hydromet plant in Quebec. The hydromet plant will convert spodumene concentrate into high-purity lithium hydroxide and carbonate.

The Company intends to start commissioning the Whabouchi mine by mid-2018, while the Hydromet plant will start up by Q1/2019. The project, however, is severely underfinanced, as the Company has only funded $107mm out of the ~$549mm upfront capital costs.

Figure 3: Project Development



Source: Company Filings

On June 12, 2017, the Company provided an update on the financing of the project. They stated they raised $50mm in a bought deal, in which the underwriters purchased 47,620,000 common shares at a price of $1.00 per share. The Company also stated they have not yet been able to obtain debt financing but are in discussions with certain parties and believe they will enter into an agreement with lenders by the end of Q3/2017. Furthermore, they stated that the Quebec government has not yet allowed them anymore grants, but the two parties will continue discussions.

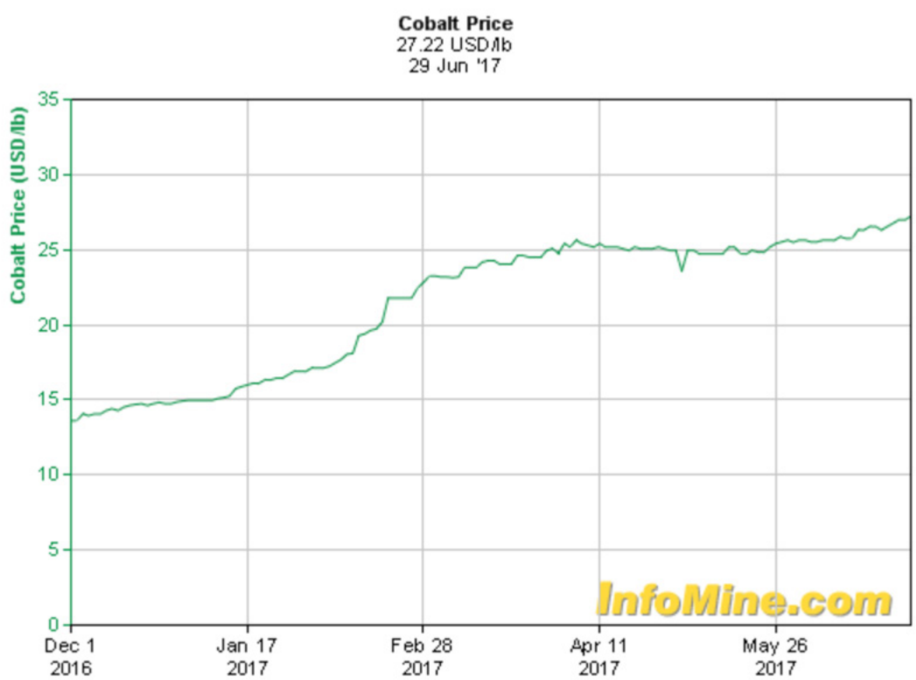
As the Company's projected start-up date gets closer, the risk of the project only goes up, as they will likely have to take on an unfavourable financing option, or move the projects start date back.

eCobalt Solutions Inc. (TSX: ECS)

eCobalt is an established cobalt producer committed to providing ethically produced, environmentally sound, battery grade cobalt salts for the rechargeable battery and renewable energy sectors. The Company has seen an up and down performance since our last report.

On March 1, 2017, eCobalt announced the closing of a $17.3mm bought deal financing. The Company issued 17.25mm units at $1.00 per unit, each unit consisting of one share and one warrant with an exercise price of $1.50. The funds for the project were used to develop the Company's Idaho Cobalt Project (ICP). This triggered a 25% drop in eCobalt's stock price that week, as the stock was trading at $1.47 and the deal was done at $1.00.

Figure 4: Cobalt Price Chart



Source: Infomine.com

The stock has since rebounded and has seen an appreciation in share price due to steadily-rising cobalt prices as well as a positive updated feasibility study announcement on June 1, 2017. On June 23, 2017, the Company announced a second update on the project. The project updates are seen in Figure 5.

Figure 5: ICP Update

Discipline / Area	% Complete
Geology & Mineral Resources	100
Mine Engineering & Design	95
Mill/Concentrator Engineering	100
CPF Engineering	100
Capital cost estimate	80
Operating cost estimate	40
Economic Results	25
Preparation of Technical Report	50

Source: Company Filings

The ICP project should prove to be extremely profitably for the Company, and seeing them make progress on schedule is an encouraging sign. The property holds an estimated 38.5mm lbs of cobalt at a grade of 0.55%. The cost per pound of cobalt is estimated at US$4.94, so margins have increased since the time of study due to increased cobalt prices. The project has a post-tax NPV of US$113mm and IRR of 24.07%, using a discount rate of 8.5% and cobalt prices of US$19.50/lb.

Figure 6: ICP Project NPV

- Pre-Tax NPV8.5%: $148 million, IRR 27.7%
- Post-Tax NPV8.5%: $113 million, IRR 24.07%
- Initial Capital Costs: $147 million
- Life of Mine (LOM): 12.5 years post preproduction
- EBITDA: $515 million
- LOM Gross Revenue: $983 million
- LOM Total Net After Tax Cash Flow $258 million
- LOM Average Net Cash Cobalt Production Cost: (net of gold, copper and magnesium credits) $4.94 per pound
- Pre-Tax Initial Capital Payback: 3.7 years
- LOM Cobalt Production: 35,356,415 pounds
- LOM Copper Production: 57,384,700 pounds
- LOM Gold Production: (including ounces in copper con and doré) 46,858 ounces

Source: Company Filings

Galaxy Resources Ltd. (ASX: GXY)

Galaxy is a global lithium company with a diverse project portfolio, consisting of both hard rock and brine assets in Canada, Australia, and Argentina. The Company produces spodumene at its Mt. Cattlin Lithium & Tantalum Mine in Western Australia. They also own and develop many other projects. The Company's stock is down 23% since our last report due to a sell off in several ASX-listed lithium companies due to fears of an oversupply from direct shipment lithium ore (DSO).

DSO is a mining activity that ships bulk ore for the mine site directly to a refinery to extract the commodity. In the case of lithium, producers would mine and crush lithium-bearing pegmatite ore and then ship it to chine where the material is then converted into lithium carbonate or lithium hydroxide. Many brokerage houses have provided logical arguments as to why the DSO oversupply is overstated. The reports are technical so it is best I let them explain their arguments. A Report from Canaccord can be found here, and a report from Citi can be found here. The fear of a DSO oversupply provides the opportunity to get into Galaxy at a good price.

Galaxy has one operational mine and multiple exploration projects. The Company has been ramping up production at their Mt. Cattlin mine. In early April, the plant achieved 100% of its throughput capacity of 120 tonnes per hour, throughput for the quarter totalled 248,488 dry metric tonnes (dmt). Product sales for Q1/2017 were 23,455 dmt, transitioning into US$13mm in sales, costs were US$389 per dmt, and the Company generated EBITDA in Q1/2017. Galaxy is also commencing an exploration drilling program at the site, with the objective of supporting the site in the short and medium term.

Figure 7: Mt. Cattlin – Production & Sales Statistics

	Units	Q1-17	YTD-17	MAR-17
Ore mined	wmt	233,193	233,193	138,346
Grade	%	0.96	0.96	0.93
Waste mined	BCM	140,069	140,069	95,839
Ore treated	dmt	248,488	248,488	97,773
Input Grade	%	1.02	1.02	1.03
Spodumene produced	dmt	23,467	23,467	9,695
Spodumene sold	dmt	23,455	23,455	13,700

Source: Corporate Filings

The Company also has a fully-funded project in Sal de Vida, Argentina. The Definitive Feasibility Study (DFS) shows an after-tax NPV of US$1.0B using a 10% discount rate.

The Company’s biggest catalyst will likely come from a resource update on their James Bay project. The James Bay project was suspended in 2012. The Company, however, has recently started up drilling work in early March and is focused on exploring and developing the lithium resources contained in numerous spodumene-bearing pegmatites. This is the James Bay resource estimate from 2010.

Figure 8: James Bay Project Resource Estimate – 2010

	Tonnes	Li_2O grade
Indicated	11,750,000	1.30
Inferred	10,470,000	1.20
Total	22,220,000	1.28

Source: Company Filings

The Company states that, "the data that will be collected in the current drilling program will allow for an update to these resources in the final DFS."

The Company is trading at 0.5x its estimated NAV of $1.3B, which is below the mining industry average of 0.7x. This is likely due to concerns of a DSO oversupply. This provides the opportunity to invest in a solid lithium company at a discounted price.

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