Farquharson on being the only near-term permitted primary cobalt company in the United States

May 25, 2018 – "I am the President and CEO of eCobalt, the only near-term permitted primary cobalt company in the United States. By primary it means that our primary project has a native metal of high-grade cobalt. This differs from most of the deposits in the world which contain cobalt as byproducts, such as copper and nickel and usually fairly low grades." states Paul Farquharson, President & CEO of eCobalt Solutions Inc. (TSX: ECS | OTCQX: ECSIF), in a recent presentation at the 7th Annual InvestorIntel Summit – Buds, Batteries & Blockchain 2018.

Paul Farquharson: When Tracy asked me to do the opening keynote for this conference, Buds, Batteries and Blockchains Conference, I thought to myself, what on earth do these three things have to do with one another? It became a lively debate around our office here and a discussion. We considered what unifies these three sectors. This is what we came to think about, they all represent a fundamental shift in society today being driven by innovation and technology across sectors, economic opportunity, consumer demand for change, corporate social responsibility and government action. An analyst at CRU, one of the most foremost business intelligent firms in the world has likened the shift we are seeing from internal combustion engines to electric vehicles to the same type of seismic shift that we saw when we went from horse and buggy to internal combustion engines in the 1900s. Some of us, like myself, were around then, most of you guys were not. The same type of groundbreaking shift is also occurring in cannabis with a wide range of implications, legal, economic and social

and in blockchain, a term so new that it was just added to the Webster Dictionary on Marth the 5th of this year. I am the President and CEO of eCobalt, the only near-term permitted primary cobalt company in the United States. By primary it means that our primary project has a native metal of high-grade cobalt. This differs from most of the deposits in the world which contain cobalt as byproducts, such as copper and nickel and usually fairly low grades. Your DRC production is copper-cobalt. It depends on the copper price for production; the nickel-cobalt production, Russian, Cuban, Sudbury, our project, primary cobalt. I have been with the company since 1992. That was even before we had the Ram deposit staked. I have been with the company all along as we advanced the project from early-stage greenfields exploration to where we are today. As I like to say, we are a 25-year overnight success. As I met some people there this morning, it is tenacity. You have to stay with this. You have to go through cycles. It takes a long time to bring these projects into production. In all those years I can generally say that I have never seen a market for cobalt as we have today. During the last cycle when eCobalt, then Formation Metals, was starting construction in 2012 we were planning to produce a super alloy grade cobalt metal used in wind turbines as a hardening agent and in jet engines. Approximately 400 pounds of cobalt is used in an average jet engine and it allows them to burn hotter so that they are much more fuel efficient. This market on its own, the super alloy grade market, is expected to double by 2020. The current cobalt market however is fundamentally different to what it was then. For that reason I believe it is here to stay. What is driving this fundamental change? The market for electric vehicles and renewable energy…to access the complete presentation, click here

Farquharson on closing a C$17.25 million financing as a rising star in the cobalt market space

Paul Farquharson, President, CEO and Director of eCobalt Solutions Inc. (TSX: ECS | OTCQB: ECSIF), in an interview with InvestorIntel's CEO Tracy Weslosky discuss their recent closing of a C$17.25 million bought deal financing. A rising star in the cobalt market space, Paul discusses the competitive pricing of the purity of their ore and prime location of their North American deposit. Paul will be presenting at InvestorIntel's 6th Annual Cleantech and Technology Metals Summit on Monday and Tuesday, May 15th and 16th in Toronto, Canada at the Omni King Edward Hotel.

Tracy Weslosky: Let's start this interview with congratulations. It seems to me that you're bringing in money hand over fist.

Paul Farquharson: We've had a good little streak here Tracy. Made some great contacts down in Australia with Canaccord Genuity, and did a bought deal. They led the syndicate for us. We put an announcement out February. Ten days later we had a bought deal close, $17.25 million. It's just phenomenal for us and our shareholders to have that money in place; really strong balance sheet moving forward as start talking to off takers and capex…it's really good for us.

Tracy Weslosky: Congratulations. Let me add, during PDAC I had two different investors come to me Paul and say, "We have deals in the DRC" and I just stepped back. Can you explain to the InvestorIntel audience why eCobalt is a real solution?

Paul Farquharson: eCobalt has a primary cobalt deposit located

in the United States, Idaho, United States, fully permitted ready to go and primary cobalt deposit. Most of the cobalt comes from copper-cobalt out of the DRC or nickel cobalt out of Russia, Cuba, et cetera. Apple just recently came out with an announcement and Apple said, we have to really examine our own supply chain because we cannot accept cobalt from the DRC because of child labor involved with that. That is not going to be something that's going to affect us. We can deal with Apple. We can deal with all of those big phone manufacturing companies, automobile manufacturing companies. We will be able to supply a transparent supply chain of where the product comes from. It's good for us.

Tracy Weslosky: For all of the InvestorIntel audience members who may not know this story, not only do you have cobalt in the United States, but talk about the actual purity of the cobalt.

Paul Farquharson: Sure. It's a primary cobalt deposit. It's about 10 times the grade of other deposits around the world, like a copper-cobalt deposit or a nickel-cobalt deposit…to access the complete interview, click here

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Cobalt crisis moves onto center stage

> *"The pace of change in the battery space has moved up a gear with the Cobalt crisis moving into centre stage and focusing minds on supply issues in the battery space, particularly as regards the "blue" metal." – Christopher Ecclestone, EU*

Editor – InvestorIntel

One does not usually expect a sober conference of traders and other players in the battery metals space to go all apocalyptic but that is what happened when the topic of Cobalt arose at the recent Argus Metals Week in London. As we all know the price for Cobalt has been on a tear, dragging along prices of Cobalt "stories" in its wake. While much of the move has been attributed to the Lithium ion battery dynamic we would note that long term underinvestment in the metal (particularly in development of primary mines) and the closure of Cu-Co mine capacity by Glencore during its late-2015 near-death experience also played a part.

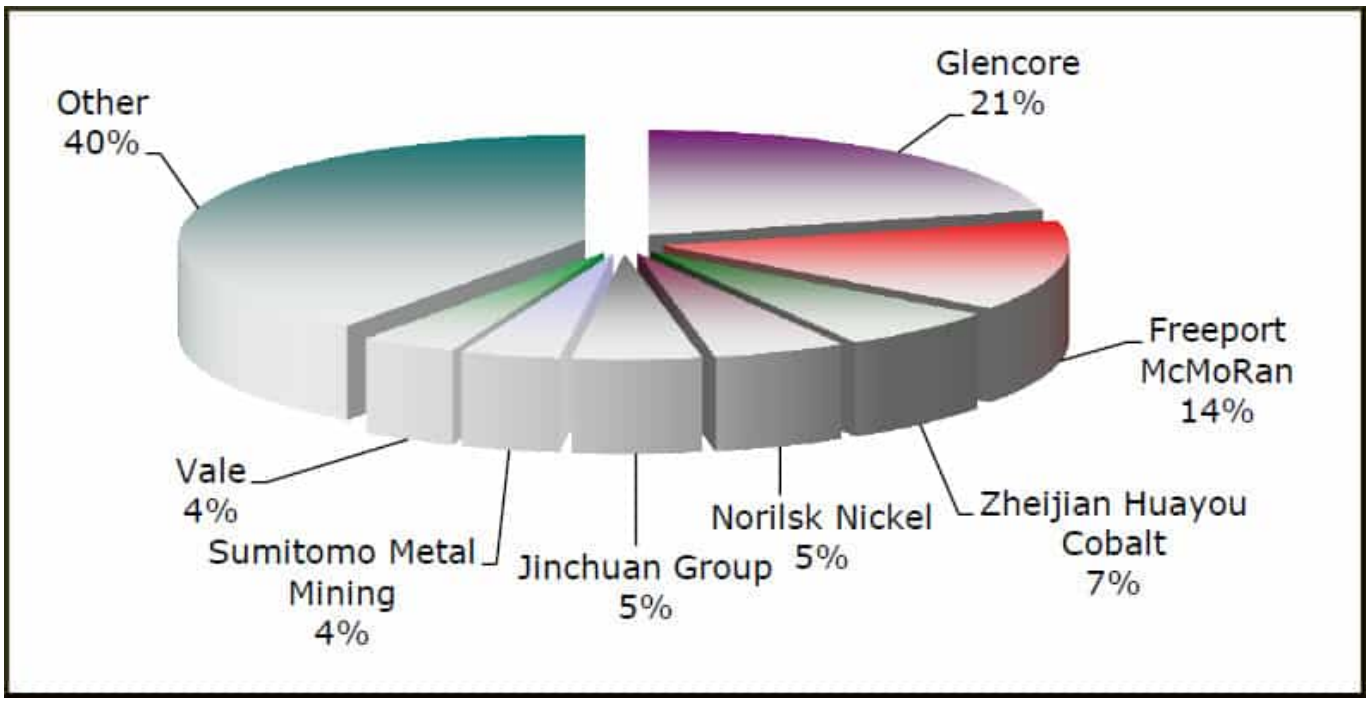
Lift-Off

The pace of change in the battery space has moved up a gear with the Cobalt crisis moving into centre stage and focusing minds on supply issues in the battery space, particularly as regards the "blue" metal. The Cobalt producers have annual output of around 100,000 tonnes. The price of Cobalt has soared (though still not back to pre-2008 levels) and the chatter in markets has been of an imminent supply crunch in absolute terms that might precipitate rationing by price and possible switching to alternative technologies.

While opinions differed on just how steep the rise in prices might ultimately be, we perceived an even bigger threat in that there might be an absolute shortage of Cobalt, transitory or longer, in which case end-users (and by that we mean beyond just the battery space) may not be able to secure Cobalt for "love nor money" as they say in the classics. One might compare it almost to like a situation of war-time shortage when "nylons" or suchlike might have totally disappeared. Clearly in a rationing scenario there will not be governments (except maybe the DRC) in a position to ration supply and thus the advantaged parties will be those for whom the cobalt is only a tiny part of a high cost product (pharmaceuticals and electronics) while the most negatively impacted will be bulk users like paints and glass.

The problem is that while higher prices might produce elasticity in demand (depressing sales of some end products or prompting big price hikes or use of alternatives, where possible) the supply side is totally inelastic because of the lack of "turn-on-able" mines either in the primary or secondary category.

Glencore is due, in 2018, to bring the Katanga mine in the DRC back on line after a US$430mn overhaul of its processing system. The operation has the potential to add as much 22,000 tonnes of cobalt. The chart below from Dorfman Anzaplan shows the current breakdown of global producers.

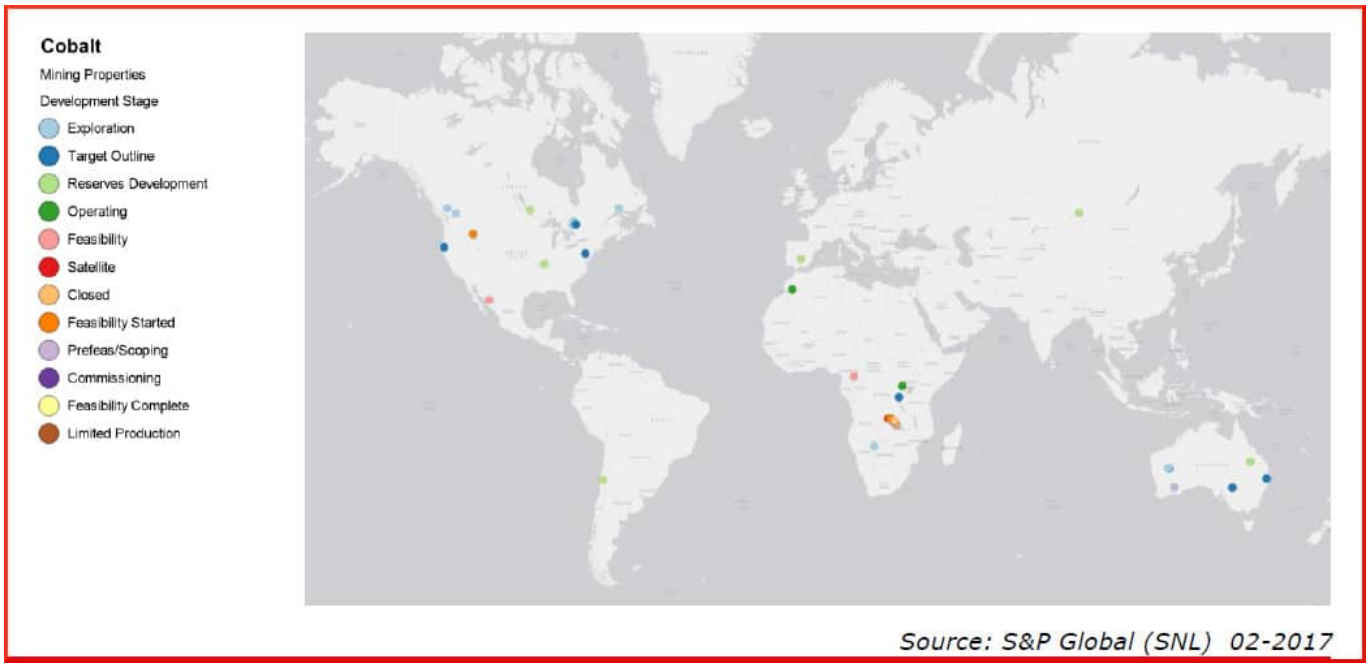


Beyond this there is no substantial pipeline. The long stalled primary mine project of eCobalt Solutions Inc. (TSX: ECS | OTCQB: ECSIF) in Idaho is one of the most advanced towards construction but even then we are talking several years at the least before a sellable product might appear. That company at least (after a long drought) has been able to raise quite a large amount of money in recent months to regain momentum towards production.

There are a handful of other projects in the works (though Dorfner Anzaplan claims that there are 46 active projects now, up from 10 at the same time last year). How many of these are credible is hard to gauge but we know some to be severely lacking in credibility both due to their very nature and also by the people involved with them.

The map below from SNL Global shows the spread of these theoretical projects in the first half of 2017. Geographically

the diversification looks good, at least.



So with a growing number of projects the picture for filling the production gap looks auspicious, but in fact it is not. Even if one third of these projects were “good”, most are still very formative indeed. If they went from 10 to 46 in number over 12 months then that signifies most have had little to no work done on them and we would also note that the real price liftoff was only in recent months so the bulk of these projects are of significantly less duration than six months.

That then in its own way confuses the market. It’s like a horse race where virtually none of the runners have seen a racetrack before. There is no “form”. That then means that punters do not know who to back and understandably place very small bets and spread them around. This does NOT make for a great financing environment. We have already seen in the Lithium space that few have put their money where their mouth is. Financings (except for a few choice or advanced names) have been little more than “maintenance” financings that pay to keep the lights on and fund the IR budget. Raises of sub-$500,000 do not pay for meaningful drill campaigns that lead to a resource. We are seeing the same thing happen in Cobalt as occurred in Lithium. That stretches out the timeline for

the various staging posts on the way to production. Years to get a resource, then delays the PEA, then the DFS and BFS years later. Production then becomes little more than a twinkle in the eye. This solves no problem at all and will drive end-users insane with frustration at the dysfunctional equity markets in the mining space.

Battery Change?

While there is no direct "switch" out of Cobalt into other metals there are patents out there for other technologies, both currently employed and theoretical, that employ other metals and minerals such as Manganese (Lithiated Manganese Dioxide batteries), Titanium (Lithium Titanate batteries) and Antimony/Magnesium (Molten Salt batteries), Vanadium (Vanadium Redox Flow batteries) and in other metals. Conventional wisdom has it that battery manufacturers, particularly in the HEV/EV sphere, are committed to Lithium Ion batteries and will pay through the nose rather than retool or adapt. However, if there is a Cobalt shortage in absolute terms or supply becomes highly irregular then they may not have any choice but to consider the unthinkable, particularly when it impacts the economics of vehicle costs.

Solutions that involved Electrolytic Manganese open up the interesting possibility that EMD, the production of which is currently dominated by China, might be tempting as an alternative within China in light of that country's lack of guaranteed Cobalt supplies. Watch this space.

Conclusion

The current rash of interest in the Cobalt space is all light and no heat. The situation now seems rather binary with the options being a slump when Glencore production feeds right through into the market OR one in which demand keeps rising, little new supply arrives and a crunch develops. Glencore now is interested it orderly markets and has benefitted massively

by enforcing discipline (mainly upon itself) in 2015 that then resulted in the rallies in Zinc and Copper than have put it back on a strong footing. The delayed effect of the 2015 cuts has now washed into the Cobalt space with soaring prices. Glencore are not going to want to damage this new *Goldilocks* scenario that they have engineered. Even better for them the lack of any up-and-coming producers means that they can now effectively control the market and pricing by being the swing producer for at least another half decade. Primary mines are likely to be smallish and not make a dent in supply even should they get to production. Megamines, particularly in the NiCo space, like Ambatovy are seen as dinosaurs and not likely to spur a rash of lookalikes for a very long time indeed.

This augurs a situation in which end-users end up like frogs in the steadily hotter water that only realise that it's boiling when they are well and truly cooked. We have had a mini-spike that has doubled the price to something like the levels that reigned pre-2008. There were speakers at the Argus event who mouthed the words "$65 per lb" and it did not rattle the teacups. Even at such a high historical level there is little that such a price could engender in new production, particularly if Glencore just sit back and decide to enjoy the situation, eking out supplies into the market. This is not like the Hunt Brothers corner where householders were rifling through their drawers to find family silver to melt down. The only "stash" of Cobalt out there is the store of dead Lithium Ion batteries that householders have secreted (unintentionally around their houses in redundant electronics). When push comes to shove "Cherchez le scrap".

North American cobalt race is on

eCobalt Solutions Inc. (TSX: ECS | OTCQB: ECSIF), based in Vancouver, boasts sole ownership of the only advanced stage, near term, environmentally permitted, primary cobalt deposit in the United States. As discussed in a previous post, on September 21, 2016, the company is dedicated to environmentally sound mining processes and their Idaho Cobalt Project (ICP) aims to offer consumers a transparent supply of ethically sourced and environmentally friendly battery grade cobalt chemicals, produced safely and responsibly in the United States.

Battery materials accounted for 49% of cobalt demand in 2015 and battery sector growth is expected to grow 11.7%, and electric vehicles have the potential to more than double cobalt demand. Tesla, Ford, Mitsubishi, Porsche, Aston Martin, BMW, GM, Volvo, BYD, Renault Nissan, Mercedes Benz, and Volkswagen have all announced significant financial investments in producing Electric Vehicles (EV) and/or Energy Storage Systems (ESS) in the next several years.

On the 5th of October, the The U.S. Defense Logistics Agency (DLA) said it has a mandate to buy lithium cobalt oxide (LCO) and 2,160 kg of lithium nickel cobalt aluminium oxide (NCA) in the fiscal year starting 1 October 2016. The amounts were detailed by the DLA in its Annual Materials Plan for financial year 2016-2017, which runs from October to September. This is double the volume that the DLA was mandated to buy in the 2015-2016 fiscal year.

ICP is America’s only near term, primary cobalt deposit with all necessary approvals required for construction and a fully approved Plan of Operations. eCobalt recently released feasibility level metallurgical work and has demonstrated it

can successfully produce high purity, battery grade cobalt sulfate from ICP ore. The project is slated to produce the equivalent of 1,500 tons of high purity cobalt sulfate annually over a projected mine life of 12.5 years. Whilst at present, there is no offtake contract with the DLA, we believe it makes sense that should the US continues to stockpile the metal, then ICP's ore would more than likely be a strong candidate to receive that government supply contract.

After receiving positive results from the preliminary economic assessment and additional metallurgical test work conducted in 2015, On June 21, 2016, eCobalt announced the signing of an agreement with Micon International Limited (Micon) for technical services to conduct a Bankable Feasibility Study (BFS) on the ICP, which is expected to be completed before the end of 1Q-2017. In addition, positive results from additional metallurgical test work to produce cobalt sulfate heptahydrate were announced in March 2016. These results are expected to be included in the BFS.

Staying true to their commitments, the ICP site incorporates several features that reduce its overall environmental footprint and waste production. In addition to a joint conservation program with the Idaho Conservation League, eCobalt claims that the modest 135-acre disturbance makes the site 100% reclaimable, and will minimise impact further by utilising an underground project design. The underground mine will have a target production rate of 800 tons per day with a weighted average annual production of 2,771,000lbs cobalt, 4,533,000lbs copper and 3,600oz gold over a 12.5-year life.

The total capital cost over the life of the mine is estimated at $201.41 million, including $146.76 million for initial capital, and $54.65 million in sustaining capital and mine development capital during production. The overall cash production cost is estimated at $468.73 million of processed cobalt contained in cobalt sulfate heptahydrate and $175.58 million of processed cobalt sulfate heptahydrate net of by-

product credits. The preliminary economic assessment has post-tax NPV at $113 million (IRR 24.07%), with a life of mine gross revenue of just under a billion dollars.

As of August 2016, eCobalt reports working capital of CAD$3.63 million, the Company has no long-term debt, and announced a 25-month shelf offering of $100,000,000.

Tesla Loses When China has Control of Congo's Cobalt

On Sept 22 this year we wrote about the impact of the Congo's war on the price of cobalt. The devastating conflict has been responsible for 6 million deaths, with the expected negative impact on the Congo's economy. Political corruption and instability tied to the November, 2016 presidential elections have added to the suffering. Copper production is at risk, taking with it the cobalt by-product, impacting global cobalt consumers including Tesla Motors.

The Tenke Fungurume Mine in the Congo produced 157,671 metric tons of refined copper and 11,669 t of contained cobalt in hydroxide in 2012 (from the US Geologic Service). Tenke is owned as to 56% by global powerhouse Freeport-McMoran Inc., 20% by the Congo's state mining company Gecamines, and 24% by Lundin Mining Corp.

In May, 2016 Freeport announced it was selling its Tenke share to China Molybdenum for USD$2.65 billion, which gave Lundin three options: exercise a right of first refusal to buy Freeport's share on the same terms, sell its own stake to China Moly or a third party, or simply allow the China Moly sale to proceed.

After receiving several extensions, Lundin last week announced it was selling its 24% stake to Chinese private equity firm BHR Partners. The sale price was roughly USD$1.14 billion in cash, with additional cash possibly payable to Lundin dependent upon copper and cobalt prices over the next 24 months. The sale price has the same implicit value as the Freeport sale to China Moly.

Lundin also waived its right of first refusal to buy Freeport's share of Tenke, and also received a commitment for a $100M break fee secured by a letter of credit, in the event the BHR sale does not proceed.

Freeport anticipates its sale to China Moly will be completed before the end of 2016. Lundin will close its sale in early 2017.

This means that two Chinese owners will control one of the world's largest copper mines and a source of much of the world's cobalt. The world is already experiencing a global cobalt shortage as production falls and consumption skyrockets due to its use in the battery market. (Roughly 60% of the weight of your cell phone battery is cobalt. Depending on the energy density needs, somewhere between 6 and 12% of the weight of an electric car's battery is cobalt.)

Congo Dongfang Mining, a wholly owned subsidiary of the Chinese mineral company Huayou Cobalt, is one of the largest mineral processors in the Congo. Other Chinese processors in the Congo include Zhejiang Huayou Cobalt Ltd and Huayou Cobalt. They sell the processed cobalt to end users like battery manufacturers in other parts of China, South Korea and Japan. Not much of that trade is directly with North American companies.

What does this mean for us? North America is import dependent for cobalt and cobalt-derived products like paints, pigments, magnets and oxides. If China controls the production and

processing of cobalt, the western world becomes highly dependent upon China's whims. It also means that China will have some ability to influence cobalt pricing – imagine the leverage through the London Metals Exchange if China simply backlogs cobalt sales for several months.

What is also means, closer to home, is that Tesla Motors needs to visit RealityLand. Dating back to 2014, Tesla has repeatedly said that it would not look overseas for the graphite, cobalt and other materials needed for its Gigafactory. The math tells us that this is impossible.

We've opined on this topic before. Here are the facts. Tesla has pre-sold roughly half a million units of its Model 3. Each of those cars will have an array of batteries which will require roughly 15 kg of cobalt per car. That totals 7.5 million kilograms (8400 tonnes) of new cobalt demand, or roughly 8% of the world's annual production. In the aggregate, Canada and the USA together produce roughly 3% of the world's supply, nowhere near Tesla's needs for just one of its models.

Christopher Ecclestone earlier in the year wrote about Tesla's wistful supply chain, and described "a frighteningly long table with the names of Cobalt projects that had been stopped in their tracks, mothballed or permanently decommissioned".

The only advanced stage, near-term, environmentally permitted, primary cobalt deposit in the United States is the much-anticipated Idaho Cobalt Project, owned by eCobalt Solutions Inc. (TSX: ECS | OTCQB: ECSIF) (formerly called Formation Metals). eCobalt is roughly 12 months from initial production, and it will take a couple of years past that to hit full production. Even running at full efficiency, eCobalt will supply roughly 1,000 tonnes of cobalt per year or about 1% of the global market, for a 12 year life of mine. That's not enough for Tesla.

From a compliance point of view, Tesla needs to make better

disclosure of its supply chain issues. Functionally, it needs the Chinese-processed cobalt, whether directly or through an intermediary like Panasonic, or the Gigafactory will end up being the world’s most sophisticated dusty warehouse.

Expect cobalt prices to continue their march upwards, with the higher costs being ultimately passed along to the end consumer.

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eCobalt represents the only near term, cobalt deposit in North America

eCobalt Solutions Inc. (TSX:ECS | OTCQB: ECSIF), formally known as Formation Metals Inc. represents a unique opportunity for investors wanting exposure to the cobalt market. The company owns the Idaho Cobalt Project (ICP) and as the name suggests, the project is located in the USA. Why is this significant?

ICP represents the sole, advanced stage, near term primary cobalt deposit in the United States. At present the majority of cobalt is supplied from the Democratic Republic of Congo (DRC), which is responsible for roughly 69,500 tonnes of cobalt per annum out of a total 108,600 tonnes.

As more attention is being directed to sustainable and responsible supply chain management, there has been an effort over recent years on eradicating a group of metals known as “conflict minerals.” These generally are defined as gold, tungsten and tin containing minerals originating from the DRC and adjacent countries.

Although cobalt is mined in the Katanga province in the DRC and is quite distinct from the war-torn provinces of Eastern Congo and South Kivu regions which by and large are responsible for conflict mineral supply, as the bulk of cobalt originates from the DRC, the metal has been associated with these conflict minerals and this has created some supply uncertainty. This uncertainty in the United States in particular was further exacerbated when in March, Obama amended a bill that prohibited the import of key raw materials from African and selected countries as part of an effort to stamp out child labour. Cobalt (heterogenite) ore was on that list (click for more information).

In June this year, eCobalt commissioned a feasibility study from SNC-Lavalin and Micon International, the results of which are expected by June 2017. Expecting a positive feasibility study, the company is considering its capital financing, including sourcing potential offtakes.

The Company has overcome a number of milestones over the last year including the completion of its Preliminary Economic Assessment (PEA) in May 2015, the completion of benchmark metallurgical tests and the successful oversubscribed private placement which raised C$4.4m which has enabled eCobalt to move forward with the commissioning of its bankable feasibility study in June this year. As such we believe that the company is well placed to become the first dedicated cobalt producer in the United States.

eCobalt trades on the TSX and its share price has risen to $0.59 this month from $0.13 a year ago, indicative of management’s consistent delivery of its goals.