All eyes on cobalt: Well documented illegal mining practices and political unrest have once again thrust the DRC's cobalt production into the spotlight. Here, Caspar Rawles outlines how the supply chain has reacted to this growing scrutiny and examines the potential for new supply from other nations.
Fortune Minerals’ NICO development is positioned to stand out as a vertically integrated Canadian asset dedicated to the production of battery-grade cobalt chemicals with co-product gold and bismuth production.

- Rechargeable batteries driving cobalt demand
- Vehicle electrification underway
- $116 million invested, positive Feasibility Study, test mined, piloted, and environmental assessments completed
- Working to secure off-take agreements and financing to start construction

BATTERY USAGE ACCOUNTS FOR 49% OF COBALT DEMAND
(Source: Darton Commodities)

COBALT DEMAND 2015

- 49% Nickel-Metal Hydride Batteries
- 33% Other
- 18% Superalloys

Cobalt is recognized as strategically important by both the US and European Union as it is critical to a number of metallurgical and chemical products but is susceptible to supply concerns.

65% of mined cobalt is sourced from the Congo

China refines 52% of the world’s cobalt
In 2016, cobalt proved to be one of the most controversial topics in the speciality minerals space. Reports from Amnesty International and articles in the Washington Post reminded the world of the illegal (or artisanal) mining issues that the Democratic Republic of Congo (DRC) has to deal with.

Whilst supply from these sources is estimated to account for up to 10% of global cobalt supply, the risk of being associated with this (and the subsequent human rights abuses that often emerge) has changed the way the consumption of minerals from the African nation is viewed.

The cobalt industry is now seeing intense pressure from end users of lithium ion batteries such as Google, Apple, and Tesla rather than the immediate buyers of cobalt chemicals – the cathode manufacturers.

November saw the launch of the Responsible Cobalt Initiative, headed by the Chinese Chamber of Commerce for Metals, Minerals & Chemicals (CCCMC) with support from the OECD.

The initiative, supported by the likes of Apple, Samsung SDI, Sony Corp among several other key industry players aims to implement better labour practices and supply chain transparency in the DRC.

While a positive statement for change in the country, the extremely fragmented nature of cobalt production in the region makes this a difficult task.

With the DRC accounting for 59% of global cobalt supply there is pressure on the cobalt industry to not only help the country reduce its illegal mining problems but also develop new sources elsewhere in the world.

Today, no other nation outside the DRC produces more than 10% of the world’s cobalt concentrate.

The DRC’s high-grade resources of cobalt-bearing minerals dictate that supplies must continue to come from the country. But as pressures from market and external forces grow, some companies will inevitably look to secure supply from other regions with more transparent operating practices.

As a speciality mineral rather than a commodity, cobalt has a long and complex supply chain throughout which material is mined, refined and often further processed into a chemical compound for multiple applications, most notably lithium ion battery cathodes that power our consumer electronics and electric vehicles.

In 2016, the supply of refined cobalt globally was around 95,000 tonnes, of which the battery sector accounted for almost 50% (up from around 25% in 2010).

The expected growth of the energy storage market out to 2020 is going to be vast pushing this figure ever-higher.

Benchmark is following 14 megafactories (battery producing facilities greater than 1GWh) which are under construction, with the largest single facility being Tesla’s gigafactory in the US but the majority of the increased capacity coming from China.

This level of investment will force fundamental change in battery raw material supply chains, in particular for critical minerals like cobalt.

Where is Cobalt Sourced?

Sources: Benchmark Mineral Intelligence

Australia

Australia currently produces cobalt from nickel laterite ore from the Glencore-owned Murrin Murrin project in Western Australia.

In addition, First Quantum (former BHP Billiton) have a nickel-cobalt project, Ravensthorpe, located in south-western Western Australia.
Second only to Canada in cobalt exploration outside of the DRC, the country boasts a number of projects.

**Broken Hill Prospecting Limited/Cobalt Blue (ASX:BPL/ASX:COB)**

In August 2016 Broken Hill Prospecting and Cobalt Blue entered into an agreement over the Thackaringa Cobalt Project located in New South Wales, approximately 23km West of Broken Hill.

Under the agreement Cobalt Blue acquired a 51% stake in the project with increased beneficial ownership gained under a standard earn in agreement, which includes the option of 100% beneficial ownership.

The region has historically hosted silver, lead and zinc ores dating back to small scale mining from the 1880s.

Inferred resources at the project, which include estimates from historical drilling, are 16.4Mt @ 1.83lb/t (831ppm) Co at Pyrite Hill and 14.9Mt @ 1.83lb/t (831 ppm) Co at the Railway prospect with a further 4.4 Mt @ 2.00 lb/t (910 ppm) at Big Hill.

It must be noted that these estimates are not JORC 2012 compliant but meet JORC 2004 standards (a JORC 2012 revision of the data is due out very late December 2016).

Early estimates are targeting an average annual production of 4,000 tonnes over a 20 year mine life.

**Cleanteq (ASX:CLQ)**

The Syerston project is located 4km from the town of Fifield, New South Wales, Australia. The laterite system in the area contains nickel-cobalt-scandium, the PFS completed by Cleanteq has been to develop the nickel and cobalt resource at Syerston, although it does contain significant quantities of scandium, the PFS base case assumes no scandium revenue as this market is considered to still be developing.

The PFS study that was completed to JORC 2012 standard shows measured, indicated and inferred resources totalling 700,00 tonnes nickel at 0.65% and 114,000 tonnes cobalt at 0.10%.

A full feasibility study is now underway which will include bulk sample testing of ore from Syerston using Cleanteq’s own Resin-In-Pulp (RIP) proprietary technology with a view to produce high grade nickel sulphate and cobalt sulphate to directly supply the cathode market.

Construction of the mine is expected to take 3 years, with the feasibility study due in Q4 2017 first production from the Syerston project would not be expected before late 2020.

Funding required for the project stands at $680 million USD, with a mine life of 39 years.

Average annual production for the initial 20 years of the mine life of contained cobalt in cobalt sulphate is 3,200 tonnes/yr and of contained nickel in nickel sulphate is 18,700 tonnes/yr based around a throughput rate of 2.5 million tonnes/yr.

**Corazon Mining Limited (ASX:CZN)**

Corazon mining has the right to earn 80% of the Mount Gilmore Project (from Providence Gold and Minerals Pty Ltd) which is located in North-eastern NSW, Australia - 35km NW from Grafton.

The initial focus of Corazon will be Cobalt Ridge, a cobalt-copper-gold deposit, which has some very small scale historical shallow mines dating back to the late 1880’s. There are a number of other areas of interest within the prospect but work is still in the early stages.

Assay results of recent drilling show zones within the drill holes ranging from 0.23% -1.48% cobalt and 0.02%-2.01% copper.
Canada
Canada already has a history of cobalt production most notably from the likes of Vale and Glencore in the Sudbury basin about 400km north of Toronto. Sudbury is well known for its nickel production but the area is also associated with copper.

Canada is in the top three global cobalt producers and has the potential to expand its output with new cobalt provinces in development.

- **Corazon Mining Limited (ASX: CZN)**
  In addition to its Australian prospect, Corazon also have the Lynn Lake project, located in North-Western Manitoba, Canada.

  A brownfields nickel-copper-cobalt project, this is very early stage however historically the region produced nickel and copper over a 23 year period.

- **Cruz Capital (TSX.V: CUZ)**
  Cruz Capital has acquired a number of high grade cobalt prospects in 2016 with a view to develop its highest priority target later in 2017.

  Subsequently the company is managing a number of prospects all at a very early stage.

  Coleman Cobalt Project, located in Kirkland Lake Mining District, Ontario, approximately making up 900 contiguous acres. Historically the area has assayed up to 13% cobalt and is associated with silver. Drill targets are to be defined in 2017.

  Hector Cobalt Project, located in Larder Lake Mining district, Ontario, comprising 5500 contiguous acres. Historically includes a cobalt producing mine and is also associated with silver. The past mine data needs to be proven to modern standards which is planned for 2017.

  Bucke Cobalt Project, located in Kirkland Lake Mining District, Ontario, approximately 1500 contiguous acres. Assays have shown 13% cobalt and 240g/t of silver (based on Province of Ontario Mineral files) but this need to be confirmed which is planned for 2017.

  Johnson Cobalt project, Larder Lake Mining District, Ontario made up of 900 contiguous acres. Some historic assays of vein structures returned results of 10.5% cobalt, 69 g/t silver, 12% Nickel and 0.4% copper, the data needs to be proven to modern standards, which is expected to commence in 2017.

  War Eagle Cobalt Project, a past producer - Fort Steele mining division, located in British Columbia, approximately 1750 contiguous acres. Last assays of surface material showed 6.41% cobalt, 3.59% nickel and 7.25% copper.

- **Fortune Minerals Ltd. (TSX: FT)**
  Fortune have a 100% stake hold in the NICO cobalt-gold-bismuth-copper project in Canada’s Northwest Territories, about 160km from Yellowknife. In addition to this Fortune have a hydrometallurgical refinery further south located 27km outside Saskatoon, Saskatchewan.

  The NICO deposit contains open pit and underground Proven and Probable Mineral Reserves totalling 33 million tonnes containing 82.3 million pounds of cobalt, (37500t 0.11% Co), 1.11 million ounces of gold (1.03 g/t Au), 102.1 million pounds of bismuth, (46500t 0.14% Bi), and 27 million pounds of copper, (12000t 0.04% Cu).

  With a planned throughput rate of 4650 tonnes of ore per day, the reserves will sustain the project for 21 years. Average annual production would equate to 1,615 tonnes of cobalt contained in cobalt sulphate heptahydrate, 41,360 ounces of gold, 1,750 tonnes of bismuth contained in ingots, needles and oxide, and 265 tonnes of copper (cement or sulphate).

**APPLE: A CLEAR MESSAGE**

This is not the first action we have seen from industry-leaders such as Apple, showing their dedication and support to the responsible sourcing of raw materials.

An announcement made by the tech giant on the 28th September this year highlighted the level of commitment the company is showing to the cobalt industry and its supply chain.

The announcement made clear that cobalt was something that had been on the company’s radar for some time, going above and beyond legal requirement.

“We’re proud that our responsible sourcing program is one of the most robust in the world. It has grown to include 40 materials such as tin, tantalum, tungsten, and gold, which have been designated as “conflict minerals”; in 2014 we added cobalt.”

While Apple states that 80% of its supply comes from vetted sources, the remaining 20% is a work in progress.

The company stresses that it does not wish to merely move its supply chain to tackle these issues. Instead, it is more in favour of enacting change to improve conditions for all associated with the supply chain.

If companies are not willing to change or Apple’s conditions are not met it’s at this stage contracts are terminated.
THE FOREMOST COBALT PROJECT GENERATOR
AND DEVELOPER IN NORTH AMERICA

Thank you for your interest in Cruz Capital Corp. Cruz is actively engaged in acquiring and developing Cobalt assets globally. Cruz has recently acquired numerous high grade cobalt assets located in North America. Seven cobalt projects are in Canada and one in Idaho, USA. The goal of the company is to make Cruz the foremost cobalt project generator and developer on the TSX Venture Exchange. Management feels that cobalt is at the early stages of a significant bull market and we are pleased to be positioning Cruz at the forefront of this cycle.

Cruz President, James Nelson, stated, "We continue to expand our cobalt assets at a time when cobalt prices continue to move to year highs. Cruz has been able to acquire, what we feel is one of the best collections of cobalt prospects in North America. Cruz’s 4 separate Ontario cobalt prospects, according to government mineral files, returned cobalt grades of 13% on the 900 acre Coleman Cobalt Prospect and 10.5% cobalt on the 900 acre Johnson Cobalt Prospect. The 5500 acre Hector Cobalt Prospect was a past producing cobalt mine and the 1480 acre Bucke Cobalt Prospect returned cobalt grades of 13%. Our War Eagle Cobalt Prospect in British Columbia covers a past producing mine as well and returned assays of 6.5% Cobalt. Based on these projects, management feels that Cruz has amassed a quality portfolio of Cobalt assets that have some of the highest historic cobalt grades in North America, which sets Cruz apart from most cobalt companies in the junior space. We feel that 2017 will be a break out year for cobalt prices and Cruz is well positioned to take full advantage of this. We plan to commence full operations on all of these projects with our goal to make Cruz the "go-to" North American Cobalt project generator and developer. 2017 will be an extremely active year for Cruz and management is optimistic about what will be discovered by Cruz on our cobalt properties."

• Cruz has recently acquired 8 separate cobalt prospects across North America

• The Coleman cobalt prospect consisting of approximately 900 acres in the Larder Lake mining division of Ontario returned grades of up to 13% cobalt & appear to be an extension of the Tretheway veins. (historic data)

• The Hector cobalt prospect consisting of approximately 5,500 acres in the Larder Lake mining division of Ontario was mined for cobalt and is a past producer of cobalt. (historic data)

• Bucke Cobalt Prospect in the Larder Lake mining division of Ontario returned assays grading 13% Cobalt & 240 g/t Silver. (historic data)

• The Johnson Cobalt Prospect encountered grab assays over 300m up to 10.5% cobalt, 69 g/t AG, 12% NI and .4% CU. (historic data) producer of cobalt. (historic data)

• The War Eagle Prospect encountered surface samples of 6.41% cobalt, 3.59% nickel & 7.25% copper and was a past producing mine (historic data)

www.cruzcapitalcorp.com
604.899.9150 | info@cruzcapitalcorp.com | @CruzCapitalCorp
Cobalt prices in 2016 went somewhat under the radar, yet over the course of the year the market saw a very strong rebound. The price range for cobalt metal reached lows of just under $22,000/tonne in late January but climbed to highs of over $31,000/tonne by December, a 42% increase over the course of the year with pressures still escalating. Strong battery demand was of course key to this, alongside depressed copper and nickel markets which saw reduced production. With battery demand going from strength to strength, well documented political struggles within the DRC and weak copper and nickel prices, we should expect the squeeze to continue well into 2017.

The cobalt supply chain is however complex, perhaps one of the most complex in the lithium-ion battery supply chain. The DRC makes up 59% of global mined supply, while China makes up 52% of refined production. But between mine and final use there are several different products that are produced, further complicating the supply chain and pricing structure. The different products in the cobalt market have traditional been priced around the metal with a premium/discount applied. Battery cathodes – which is a type of cobalt chemical - are now by far the most significant use in the cobalt market, accounting for around 50% of production. Second to batteries, superalloys account for 16% of the market. But with these secondary markets for cobalt being mature markets being relatively mature it will be interesting to see whether this historic relationship holds true?

Benchmark Mineral Intelligence plans to release a battery focused cobalt price forecast in 2017 – for further information or to register interest please contact: Caspar Rawles, crawles@benchmarkminerals.com

Fortune is one of the few near term cobalt projects, with $116million CAD (~$87 million USD) invested, the feasibility study has been completed and the major mine permits are in place. To reach production $600million CAD ($450million USD) of project financing is required with a 2-2.5 year construction period.

Global Energy Metals Corp. - Private
The Werner Lake Cobalt Project is located in the Kenora Mining District, Northwestern Ontario near the Ontario/Manitoba border. The mineralisation found at the project is cobalt-copper-gold.

Historical resource estimates **show proven reserves at 140,031 Tonnes at 0.47% Co, 0.26% Cu, 0.008opt Au, probable Reserves of 40,829 Tonnes at 0.25% Co, 0.43% Cu, 0.030 opt Au and Indicated Resources of 180,860 Tonnes at 0.13% Co, 0.20 Cu, 0.003 opt Au.

Green Swan Capital (TSX.V: GSW)
The Copper Prince project is located in Sudbury basin, Ontario. An area well known for its cobalt production (Vale and Glencore). A drill program has been undertaken by Green Swan focusing on the area known as Ed’s Watering Hole in the south of the prospect with assay results due out imminently.

The site was used to mine cobalt between 1932 and 1944 (with an average grade of 2.2%Co) during World War 2. Whilst significant historical test work has been completed on the site, including a historical pre-feasibility study, metallurgical tests and underground development work, GEMC is in the process of finalising a NI 43-101 compliant Resource Report which is due to be released in early 2017.

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**WHERE DOES COBALT RAW MATERIAL COME FROM?**

<table>
<thead>
<tr>
<th>Country</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRC</td>
<td>59%</td>
</tr>
<tr>
<td>Canada</td>
<td>9%</td>
</tr>
<tr>
<td>Cuba</td>
<td>6%</td>
</tr>
<tr>
<td>Australia</td>
<td>5%</td>
</tr>
<tr>
<td>Russia</td>
<td>5%</td>
</tr>
<tr>
<td>Other</td>
<td>16%</td>
</tr>
</tbody>
</table>

Sources: Benchmark Mineral Intelligence
## GLOBAL COBALT EXPLORATION AND DEVELOPMENT

<table>
<thead>
<tr>
<th>Company</th>
<th>Project name</th>
<th>Location</th>
<th>Geology/Mineralogy</th>
<th>Development status</th>
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<tbody>
<tr>
<td>Cleanteq</td>
<td>Syerston Project</td>
<td>New South Wales, Australia (24km from Fifield)</td>
<td>Nickel-cobalt</td>
<td>PFS completed, FS expect Q4 2017</td>
</tr>
<tr>
<td>eCobalt</td>
<td>Idaho Cobalt Project</td>
<td>Idaho, USA</td>
<td>Primary Cobalt, secondary copper and gold deposit hosted in precambrian metasediments - VMS</td>
<td>PFS – FS expected first quarter of 2017</td>
</tr>
<tr>
<td>Fortune Minerals Limited</td>
<td>NICO Project</td>
<td>Mine 160km from Yellowknife, hydrometallurgical refinery in Saskatchewan (27 km from Saskatoon), Canada</td>
<td>Cobalt-Gold-Bismuth-Copper</td>
<td>Feasibility study complete, project is ’Shovel ready’</td>
</tr>
<tr>
<td>Cobalt Blue</td>
<td>Thackaringa Coblat Project</td>
<td>New South Wales, Australia (23km West of Broken Hill)</td>
<td>Cobaltiferous pyrite</td>
<td>Early stage</td>
</tr>
<tr>
<td>Global Energy Metals</td>
<td>Werner Lake Cobalt Project</td>
<td>Kenora Mining District, Ontario, Canada</td>
<td>Cobalt-Copper-Gold mineralization</td>
<td>Historical PFS work completed. GEMC in process of completing NI 43-101 resource estimate</td>
</tr>
<tr>
<td>Green Swan Capital</td>
<td>Copper Prince Project</td>
<td>Sudbury basin, Ontario, Canada</td>
<td>Cobalt and gold</td>
<td>Early, initial drill program results out imminently</td>
</tr>
<tr>
<td>Cobalt X</td>
<td>Stockpiles</td>
<td>Queensland, Australia</td>
<td>Cobalt stockpiling from previous operation</td>
<td>Early</td>
</tr>
<tr>
<td></td>
<td>Mount Gordon Mine area 1 &amp; 2 Success Mine area 1 &amp; 2</td>
<td>Queensland, Australia</td>
<td>Copper-Cobalt</td>
<td>Early</td>
</tr>
<tr>
<td></td>
<td>Mount Cobalt East</td>
<td>Queensland, Australia</td>
<td>Copper-Cobalt</td>
<td>Early</td>
</tr>
<tr>
<td>Corazon Mining Limited</td>
<td>Mount Gilmore Project</td>
<td>New South Wales, Australia North-wester Manitoba</td>
<td>Cobalt-copper-gold                 Nickel-sopper-cobalt</td>
<td>Early</td>
</tr>
<tr>
<td></td>
<td>Lynn Lake</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cruz Capital</td>
<td>Coleman Cobalt Project</td>
<td>Kirkland Lake Mining District, Ontario, Canada</td>
<td>Cobalt-silver</td>
<td>Early</td>
</tr>
<tr>
<td></td>
<td>Hector Cobalt Project</td>
<td>Larder Lake Mining District, Ontario, Canada</td>
<td>Cobalt-silver</td>
<td>Early</td>
</tr>
<tr>
<td></td>
<td>Bucke Cobalt Project</td>
<td>Kirkland Lake Mining District, Ontario, Canada</td>
<td>Cobalt-silver</td>
<td>Early</td>
</tr>
<tr>
<td></td>
<td>Johnson Cobalt Project</td>
<td>Larder Lake Mining District, Ontario, Canada</td>
<td>Cobalt-silver-nickel-copper</td>
<td>Early</td>
</tr>
<tr>
<td></td>
<td>War Eagle Cobalt Project</td>
<td>Fort Steele mining division, British Columbia, Canada</td>
<td>Cobalt-nickel-copper</td>
<td>Early</td>
</tr>
<tr>
<td></td>
<td>Idaho Star Cobalt Project</td>
<td>Idaho, USA</td>
<td>Potential cobalt with copper-zinc-gold-silver</td>
<td>Early</td>
</tr>
<tr>
<td>Kings Bay</td>
<td>Lynx Lake</td>
<td>100km southeast of Happy-Valley, Goose Bay, Newfoundland and Labrador</td>
<td>Copper-cobalt-nickel-silver</td>
<td>Early</td>
</tr>
<tr>
<td>LiCo Energy Metals</td>
<td>Teledyne Cobalt Project</td>
<td>6km outside the town of Cobalt, district of Temiskaming, Ontario, Canada</td>
<td>Cobalt-Nickel-silver</td>
<td>Early</td>
</tr>
</tbody>
</table>
### Cobalt

<table>
<thead>
<tr>
<th>Proven and/or estimated resource size</th>
<th>Time to production start-up (Assuming required funding has been achieved)</th>
<th>Expected annual output</th>
</tr>
</thead>
<tbody>
<tr>
<td>700,000t Nickel at 0.65% 114,000t Cobalt at 0.10%</td>
<td>Production expected late 2020 if $680m USD funding achieved</td>
<td>Over first 20 years of 39 year mine life: 3,200 tonne/yr cobalt contained, 18,700 tonnes/yr nickel contained</td>
</tr>
<tr>
<td>Measured and Indicated 38,583,000 lbs Cobalt (17500t) 51,962,000 lbs Copper (23500t) 57,700 oz gold</td>
<td>21 months to full production once fully financed, CAPEX required is $147 million USD (figure subject to change with release of FS in Q1 2017)</td>
<td>Over 12.5 year mine life weighted Average annual production is: Contained cobalt (at 20.9%) in cobalt sulfate Heptahydrate: 2,722,493 lbs (1250t) Gold: 2868 Oz Magnesium sulfate: 34,393,958 lbs (15500t) Magnesium sulfate: 34,393,958 lbs (15500t) Copper Concentrate: 1799816 lbs (800t)</td>
</tr>
<tr>
<td>Contains open pit and underground Proven and Probable Mineral Reserves 82.3 million pounds of cobalt (0.11% Co) (37500t) 1.11 million ounces of gold (1.03 g/t Au) 102.1 million pounds of bismuth (0.14% Bi) (46500t) 27 million pounds of copper (0.04% Cu) (12000t)</td>
<td>2-2.5 year depending on season funding acquired, $600 million CAD needed</td>
<td>Over 21 year mine life Average annual production is: 1,615 tonnes of cobalt contained in cobalt sulphate heptahydrate 41,360 ounces of gold 1,750 tonnes of bismuth contained in ingots, needles and oxide, 265 tonnes of copper (cement or sulphate)</td>
</tr>
<tr>
<td>35 million ton resource (JORC 2004 compliant - undergoing upgrade)</td>
<td></td>
<td>Targeting 4000 tonnes per year over 20 year mine life</td>
</tr>
</tbody>
</table>

**Definitions**

| Near term | Any project that can begin production within an 18 month period. |
| Intermediate | Any project that is actively drilling and/or in the process of completing economic assessment or feasibility studies. Usually a 2-3 year lag time. |
| Early stage | Any project that is at the very early stages of exploration and/or development including hand sampling, trenching and preliminary testing on samples. >3 year lag time. |

**The historical resource estimates at Werner Lake are not being treated as a mineral reserve or mineral resource. Key assumptions, parameters, and methods used to prepare the historical estimates are not known. A qualified person has not done sufficient work to classify the historical estimate as a mineral resource or mineral reserve. Additional drilling and testing is required to determine a current classification as a mineral resource or mineral reserve. The Company is not treating the historical information as a current mineral resource or mineral reserve and the reader is cautioned to not rely upon this data. The historical resource estimate completed by Canmine Resources Ltd. in 1998 does not conform to current NI 43-101 standards.**
with cobalt, nickel and gold. Green Swans early assays have peaked at 4.5% cobalt and 44g/t gold, although these are not representative samples over the whole resource.

The project is in its early stages but notably in its favour is significant local mining infrastructure from ongoing cobalt operations in the region (Glencore’s main smelter is located in the area). Furthermore, the project is located on patented lands (not crown lands) reducing permitting/paperwork requirements.

Green swan plans to complete a second drill program in spring 2017 followed by bulk sample testing in the summer.

Kings Bay (TSX.V: KBG)
Kings Bay have acquired a 100% interest in the Lynx Lake Cobalt Prospect 100km southeast of Happy-Valley, Goose Bay, Newfoundland and Labrador. The area has been opened up to exploration since the construction of the Trans Labrador Highway, which runs adjacent to the property.

Assays (2012 and 2014) carried out by prospectors in the area found copper-cobalt-nickel-silver in the area with preliminary grab samples yielding up to 1.39% copper, 0.94% cobalt, 0.21% Nickel and 6.5g/t silver.

NI 43-101 compliant data is due to be released soon. Furthermore, an airborne geophysical survey is to be undertaken to identify drill targets for a program in early 2017.

LiCo Energy Metals (TSX.V: LEC)
The Teledyne Cobalt project is located 6km from the town of Cobalt, in the district of Temiskaming, Ontario. The project was purchased under 100% option and 2% net smelter royalties from Palisade Resources.

The prospect has undergone a historic (1979-1980) drill program by previous owners which shows a resource of approximately 100,000 tonnes at 0.45% cobalt, 0.25% nickel and 3oz/ton of silver (not NI 43-101 compliant measurement).

The area has historic cobalt and silver production dating back to 1903 with data showing 14,000 tonnes of cobalt and 18,000 tonnes of silver produced.

On the 7th December 2016 LiCo commenced its own exploration programme - a geophysical survey to cover previously unexplored ground on the prospect. This will be followed up with a diamond drill program planned to commence in 2017.

USA
A nation late to the cobalt mining party - the USA at this time has no cobalt producing projects despite being a large consumer. A number of prospects have been located, largely in the north of the country, but there is still some work to be done.

Cruz Capital TSX.V: CUZ
In addition to their Canadian prospects Cruz also have the Idaho Star Cobalt Project in the US. The tenement includes an old mine that historically produced copper, zinc, gold and silver.

The old mine has 6 adits to be tested and has shown elevated arsenic level (up to 0.245%) under adit 1 which may indicate the presence of arsenopyrite which can be found to contain cobalt. Work on this is to be done in 2017.

eCobalt (TSX:ECS)
eCobalt (formally known as Formation Metals) has the Idaho Cobalt Project located in Lemhi County Idaho. Alongside hosting cobalt the geology also contains copper and gold in Precambrian metasediments. The resource contains 38,583,000 lbs Cobalt (17500 MT), 51,962,000 lbs Copper (23500 MT) and 57,700 oz gold.

One of the projects further down the line of development with $110 million USD already spent (and the only near term, environmentally permitted project in the US) a feasibility study is expected in the first quarter of 2017. The project not only includes the mine but also a refinery (to be located in southern Idaho) to upgrade the concentrate to value added products, in the form of cobalt sulphate for the battery market.

The weighted average annual production of the mine under current plans is as follows, Contained cobalt (at 20.9%) in cobalt heptahydrate: 2722493 lbs (1250t), gold: 2868oz, Magnesium sulphate 34393958 lbs (15500t) and copper concentrate 1799816 lbs (800t).

With all necessary approvals required for construction and a fully approved Plan of Operations the project requires funding to the tune of $147 million USD (this figure is subject to change with the release of the feasibility study in Q1 2017).

Once financed the project is expected to take 21 months to full production with a 12.5 year mine life.
eCobalt Solutions Inc. is committed to providing ethically produced and environmentally sound battery grade cobalt salts, essential for the rapidly growing rechargeable battery and renewable energy sectors, made safely, responsibly, and transparently in the United States.