Untapping Canada’s Hidden Lithium Treasuries

Marc Davis from BNW News hit the nail on the head with his latest article on Canada’s untapped lithium resources waiting to get the attention they deserve in a rapidly changing world, in which batteries are set to catapult lithium demand by +400% within the next 4 years. With a market capitalization of less than $2 million, 92 Resources Corp. announced in March to acquire the Hidden Lake Lithium Property near Yellowknife in NWT, Canada, with historic grades between 1.4% and 3% lithium oxide (Li2O). For comparison: Nemaska’s Whabouchi Deposit in Quebec averages 1.5% Li2O. Rockstone is looking forward to the closing of the ongoing $300,000 financing, out of which $100,000 are still to get placed at 5 cents (including one half of a warrant exercisable at 10 cents for 2 years). Considering that 92 Resources’ share price has been trending confidently above 5 cents recently, Rockstone expects the closing shortly, whereafter the start of an exploration program is anticipated.
How long does it take to build a business into a billion dollar asset? Typically, it takes a whole generation – or longer. (For instance, it took the world’s largest retail company, Walmart, nearly 30 years to reach $1 billion in sales.)

But in the mining business, stratospheric success can happen in just a matter of weeks. That’s assuming an exploration company is smart enough, as well as fortunate enough, to drill in the right places. In which case, there still exists the opportunity to unearth multi-billion mineral assets that are ripe for the picking. And for the right kinds of minerals, such as lithium and diamonds, even Canada still offers untapped opportunities.

92 Resources Corp. (TSX.V: NTY) (Frankfurt: R9G2) is among the many intrepid exploration juniors that hope to become virtually overnight rags-to-riches stories. It’s pinning its hopes on a revitalized lithium project, which is situated only 40 kilometres from Yellowknife, the capital city of the Northwest Territories (NWT).

Whereas most of Canada has already been picked clean for new gold discoveries, the hunt for rich lithium deposits has only become a popular quest within the last several years.

And the rewards can be very lucrative indeed. For instance, one of 92 Resources’ peers in the exploration sector, Nemaska Lithium Inc., has already hit the geological jackpot. It went from the discovery stage just a few short years ago to an independently-assessed valuation (NPV) of almost $1.9 billion for its Whabouchi lithium project in James Bay, Quebec.

Most notably, Tesla wants to source as much of its lithium supplies as possible from domestic or Canadian mines. And presently, that’s a tall order because only one North American lithium mine exists, which is also in Nevada.

All of this promises to be a boom to successful lithium explorers here in North America, especially since the U.S. currently has to import over 80% of its lithium supplies. Even the U.S. government is onside with Tesla’s bold mandate because it has declared lithium to be a strategic metal.

Red and green spodumene crystals bearing the battery-critical element lithium (source)

And 92 Resources isn’t wasting any time in its efforts to probe the parameters of an emerging hard-rock lithium resource at Hidden Lake. This is where historic work has outlined a near-surface lithium discovery that has the potential for large tonnage, as well as high grades.

The work was conducted as far back as the mid 1950s when lithium – the world’s lightest metal – was being hunted for industrial applications, as well as for nuclear power plants. However, a subsequent slump in lithium demand led to the abandonment of the project. And the project has languished ever since – until now.

That said, there has been some modest success at mining lithium in this remote part of Canada dating back to the 1940s and 1950s. However, company president Adrian Lamoureux says most historic exploration and development work in this region has only just scratched the surface.

For instance, he points to a 1977 geological assessment of the Hidden Lake property and adjacent prospects, which suggests their combined potential to host at least 49 million tons of high-grade lithium (averaging 1.40% Li2O). (It should be noted that this historic resource esti-
mate is not NI 43-101 compliant, meaning that it does not qualify in Canada as a reliable resource measurement. Though his company will need to expand its land holdings and drill to see if these figures can be duplicated, Lamoureux says even a more modest-sized deposit could be profitably mined.

“Most hard rock lithium deposits around the world start to become potentially economic at a minimum threshold of around 10 million tons,” he says. “That is assuming that they have grades at around 1.0% lithium (Li2O) or better, and are located in established mining districts with good infrastructure in-place.”

“So if we can demonstrate that we have the kind of tonnage and high grades that historic exploration works suggests exist at Hidden Lake, then we’re onto a prospectively world-class winner,” he adds.

The project’s appeal is sweetened by the fact that it sits within 150 metres (500 feet) of the surface, which means it could be amenable to inexpensive open-pit (quarry-like) ore extraction.

To date, surface trench samples have yielded grades as high as 3.01 % Li2O, with an average grade of about 2% among the mineralized showings. Of equal significance, some small-scale historic drilling has also revealed mineralized grades to a depth of 150 metres that are comparable to ones encountered by near-surface sampling.

This prospect of consistently rich grades throughout this well-mineralized asset is what really excites Lamoureux. And that’s something that 92 Resources aims to find out in the coming months.

In the near-term, the company intends to conduct an extensive surface sampling program. This will provide a better understanding of the overall parameters of this under-developed lithium resource, as well its average grades near the surface. Subsequent to that, a drill program is expected to get underway this fall.

Recent exploration work at the expansive 1,000-hectare-plus property also suggests it may be significantly larger than it was originally believed to be. To this point, numerous geological anomalies that have yet to be tested, all of which suggest the deposit is “open” (continuous) along a linear axis.

Accordingly, 92 Resources’ management believes its Hidden Lake deposit holds the potential for considerable expansion.

Additionally, the nearby proximity of Yellowknife means that the project benefits from accessibility to important regional infrastructure. The fact that a well-serviced gold mining camp is located a short distance to the west of Hidden Lake further benefits the logistics in favour of a prospectively economic project. And the NWT is well-known for being a mining-friendly jurisdiction.

An important discovery at Hidden Lake would be welcome news for the renewable energy business sector. In fact, the large-scale adoption of lithium-ion batteries is being aggressively presaged by various government initiatives. They include the Obama Administration’s commitment of $2 billion to helping finance clean energy initiatives, which include a broad-based adoption of lithium-ion powered batteries.

Other catalysts for the accelerated growth in the lithium-ion battery market include quickly falling battery prices, matched with the advent of more “green battery” mega- factories being built around the world.

All told, lithium demand is forecast to triple by 2020, according to the Californian technology research firm, Frost & Sullivan. This should translate into a $40 billion a year lithium-ion battery market by the same year, according to Citi Research, a division of the giant U.S. bank, Citibank.

The problem right now is a supply constraint. This is because lithium mining around the world is controlled by just four major chemical companies. And they’re not able to quickly scale-up production any time soon. Not surprisingly, lithium prices have been trending upwards, especially over the past couple of years.

This long-term ascendancy in lithium prices appears poised to gather steam, especially because there’s a supply crunch on the horizon. In fact, demand is anticipated to be as high as 125% of total production capacity, according to Credit Suisse Equity Research, part of the giant European investment bank Credit Suisse.

Besides being capacity-constrained, lithium mining is also subject to geopolitical risks and environmental issues among the world’s major production areas, which include Latin America and China. So battery manufacturers are desperate for an uninterrupted long-term lithium supply that is mostly sourced here in North America.

This all explains why it is imperative for new producers to meet a projected future supply deficit. Certainly, 92 Resources hopes to be one of them.

In so doing, the company will have a chance to brandish its “green” credentials by helping to set society on a path toward a low-carbon energy future. And in the process, investors have an opportunity for a home-run win like the one that’s already being enjoyed by shareholders of Nemaska Lithium.
Battery grade graphite and lithium demand could surge if pre-orders of Tesla Motors’ Model 3 are any indicator of sales between 2017 and 2021.

Orders for Model 3 – which there is very little information on at the present, including the battery size – today reached 325,000 units.

Analysts expected Tesla to secure between 30,000 to 60,000 orders on day one of Model 3 availability, however expectations were comfortably beaten when Elon Musk revealed 115,000 orders at the end of the official launch.

As a comparison, in the first 24 hours of the Model S launch, Tesla received 300 reservations while the Model X reached 8,000 pre-orders in its opening day.

It is important to note that pre-orders of this nature are not sales. However, the Model 3 numbers are significant as it addresses whether the wider public are prepared to buy pure electric vehicles and focuses the question on whether Tesla can deliver.

How much lithium and graphite?

There are many assumptions that are made when estimating Tesla’s raw material demand as it ramps up to becoming a mainstream vehicle manufacturer.

These include: the size of Model 3’s battery, whether Tesla will use an NCA cathode, ramp up rate of the Gigafactory, bottlenecks in car manufacturing, and drop off in pre-orders versus the new ones that come in.

Benchmark Mineral Intelligence estimates for Model 3 raw material consumption between now and 2021 are as follows:

In 2021, based on Tesla manufacturing 150,000 Model 3 units, Benchmark estimates that the company will consume 10,800 tonnes of spherical graphite for its anodes and 7,200 tonnes of lithium hydroxide as a cathode raw material.

In terms of battery raw materials: this is the equivalent of 44% of the world’s battery grade lithium hydroxide and 15% of the world’s spherical graphite consumption in 2015.

Cumulatively, assuming today’s 325,000 Model 3 pre-orders convert into sales, over the next 5 years – a conservative number considering there is still 18 months before it is launched – the product line will consume a total of 23,400 tonnes of spherical graphite and 15,600 tonnes of lithium hydroxide.

In 2015, 100% of the world’s battery-grade spherical graphite is sourced in China (Benchmark Mineral Intelligence)
What will Tesla’s average annual demand for vehicles be?

Of course, this demand will not hit the market all at once.

Tesla expects to produce 80-90,000 Model S and Model X vehicles in 2016, a significant increase on the 50,580 units it made in 2015.

If Tesla is able to reach a production total 300,000 vehicles a year all with batteries ranging from 60kWh to 90kWh in capacity, its annual demand for spherical graphite in vehicles in 2021 will be over 26,000 tonnes a year.

In the same period, the company’s lithium hydroxide consumption will be over 17,000 tonnes a year.

This does not take into account Tesla Energy’s raw material consumption for its Powerwall and Powerpack utility batteries, which could be up an additional 40%.

Then there is a question of stockpiling: how much will Tesla wish to stockpile?

Lithium hydroxide would pose a problem if stored longer than 6 months; however spherical graphite can be stockpiled for some time.

It would be fair to assume Tesla will require at least one year’s worth of stockpiled material where possible which could further increase its purchases by 25% a year from 2018-2021.

Will Tesla have to compete with China’s megafactories?

One thing is for certain, Tesla will become one of the largest purchasers of niche raw materials in the world. But with 70% of expected lithium ion battery demand coming from China, securing the necessary volumes will not be an easy feat.

As of April 2015, Benchmark estimates that at least 12 lithium ion battery megafactories are in the pipeline between now and 2020. These are classified as new or existing plants being planned, constructed or expanded to gigawatt hour capacity.

Of these 12 operations, only two are located in the US (Nevada and Michigan), while 7 are located in China. Europe, Taiwan and Korea are the three other locations expecting significant new battery capacity.

Not all of these plants will be built to full capacity, but even if only 25% of this new capacity enters the market in the expected timeframe, there will be serious competition for the same raw material supplies.

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Watch the Model 3 launch here (click on below image or here to watch video):
Lithium’s price fortunes are becoming increasingly tied to consumer electronics through its application in lithium ion batteries while other the price of other minerals and metals like iron ore, bauxite, and graphite are still driven by industrial demand, predominately in China.

Interestingly, over the last decade lithium’s price has only once seen a decline, other years have seen at least marginal increases in the single digits.

In addition, 4 out of the last ten years have seen double digit increases for the price of lithium carbonate: 2007, 2008, 2009, and 2015.

There is little doubt that 2016 will be added to this list.

Gigafactory: 30% of output for Tesla energy utility batteries

One third of the lithium-ion battery packs produced at Tesla Motors’ Gigafactory in Nevada will be destined for the utility market.

Tesla’s utility storage division, Tesla Energy, has recently started shipping Powerwall, a battery pack for the home, and Powerpack, a commercial storage solution, to customers in US, Germany and Australia.
While no information has been released about the storage capacity size of the commercial-scale Powerpack orders, Benchmark Mineral Intelligence estimates them to be megawatt hour solutions.

Meanwhile, orders for the 7-10kWh Powerwall have already been installed in homes around the world including the US, UK and Australia.

“We are still on track to produce 35GWh of [lithium ion] cells, and 50GWh of [battery] packs [by 2020],” Tesla’s Chief Technology Officer, JB Straubel, explained.

“15GWh of that [output] will be going to Tesla Energy and the rest to Model 3 and [Model S and Model X] vehicles,” he added.

The Gigafactory – which will be the world’s biggest lithium-ion battery plant when fully operational – is on track for an official unveiling this quarter, a megaproject in which Panasonic Corp has played a key role.

“Panasonic continues to be excellent partner in the project,” CEO Elon Musk said.

“[Panasonic] has given additional capital commitment to the [Gigafactory] and has also started hiring and training people. Things are going as well as they can,” Musk said today.

Benchmark expects Tesla to be manufacturing lithium-ion cells from scratch at the Gigafactory from 2018 onwards.

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Gigafactory 1, Nevada, US: The biggest building footprint in the world at full capacity (click on below image or here to watch video):
South Korea’s rise to Lithium prominence

By Benchmark Mineral Intelligence
on February 23, 2016

South Korea is often recognised as a hub of technology innovation and battery R&D, but until recently the country was far behind its Asian peers in terms of its lithium consumption.

A decade ago the country was consuming under 3,000 tonnes of lithium chemicals, and it wasn’t until 2007 that it ramped up its lithium purchases to feed its growing manufacturing of lithium ion battery cathodes.

From a base of around 1,400 tonnes in 2001, orders from South Korea – which has no domestic sources of lithium – have increased at a CAGR of 18.9%. And in five of the past six years, the country’s lithium consumption has risen.

Demand from the country’s battery sector has seen it rise from a relatively minor player in the lithium space to a major end market over the past decade.

South Korea now accounts for 10% of global lithium demand and is the fourth largest global market.

With the country’s battery producers scaling up production ahead of the expected rise in demand from automotive and utility storage applications, consumption is set to continue on this trajectory, with orders forecast to exceed 20,000 tonnes LCE in 2016.

This rise will continue to be led by demand for lithium carbonate which accounts for 85% of sales.

Sales of lithium hydroxide have, however, more than doubled since 2012, from less than 1,000 tonnes to over 2,500 tonnes last year, indicating increased production of nickel cobalt aluminium (NCA) and lithium iron phosphate (LFP) battery cathode chemistries.

According to Benchmark Mineral Intelligence forecasts, battery demand from the automotive sector is expected to increase by 42% by 2020, while stationary storage demand will increase eight times, from a low base today.

This growing demand has already seen battery majors initiate plans to increase production capacities, expansions which will require significant new volumes of lithium raw material.

South Korea, hosting many of the world’s biggest battery companies, has become a major consumer for this consumption and will continue to grow in prominence out to 2020.

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What if you held a resource that could ultimately change the world?

Do you start realising its value or do you wait, keeping it safe for a rainy day?

And what if that latent wealth resides in environmentally-sensitive areas – how will that influence your decision?

Chile is pondering these and many more questions as part of a long-standing and nuanced debate on lithium.

The country holds a significant proportion of the world’s known lithium reserves in high-altitude regions noted for salar brine extraction, with the US Geological Survey estimating the country has more than 7.5 million tons of identified lithium resources.

A select group of market participants dominate production, including SQM and Albemarle, the latter holding Chilean interests through its acquisition of Rockwood Holdings, the parent of Rockwood Lithium, at the start of 2015.

On February 1, the country’s mining ministry announced a memorandum of understanding (MoU) that Albemarle could grow its Chilean lithium carbonate output from 24,000 tons to 70,000 tons over the next four years.

The ministry estimates the deal will deliver between $70m and $100m a year into government coffers through royalties, taxes and other instruments.

Several days earlier, on January 25, it was reported that Codelco had established a schedule for a bidding process to evaluate and explore its lithium assets in the Maricunga and Pedernales salt flats.

Coldelco is the state-owned mining giant more widely known for its copper interests.

“The successful bidders would be in a preferential situation in terms of partnering with the corporation [Codelco] if the economic viability of those assets is confirmed,” the President’s office noted on January 26.

None of this points to a bonanza or even heralds a new lithium rush.

In their excitement, many commentators forget the material’s unique status in Chile; lithium is non-concessionary, accompanied by specific rules and regulations.

Even as far back as 1979, the country decreed that the rights to extract, process and trade lithium compounds resides with the State and its companies, or those it specifically agrees to operate with via Presidential assent.

On January 26, Chilean President Michelle Bachelet reiterated this stance after receiving the National Lithium Commission’s report on the country’s new National Lithium and Salt Flat Governance Policy.

“One of the first decisions that we made was to take up the commission’s call to reaffirm the strategic nature of lithium, which is the property of all Chileans, and to maintain its condition as a material that is not subject to concessions,” she said.

The policy creates a new regulatory framework to define conditions for lithium exploitation and the engagement of communities.

It also seeks to strengthen coordination between the Chilean Economic Development Agency (Corfo) and Codelco, the Chilean state-owned mining giant more widely known for its copper interests.

“I am fully confident that Chilean lithium will not be a case of frustrated development, but an example of a well-built future,” President Bachelet said.

Where other nations may seek to rush in, it seems Chile will maintain a slow, steady and purposeful approach towards lithium.

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