

# Lithium staking rush under way

by Ellsworth Dickson

Every few years, an intriguing story comes out that prompts many junior explorers to enter a particular sector of the mining industry and a major staking rush ensues. Sometimes this follows a major discovery such as the diamonds in the Northwest Territories or the Voisey's Bay nickel discovery in Labrador.

This time, it's a perceived demand for lithium that has over 50 junior companies acquiring both hard rock (spodumene) and lithium brine prospects in several jurisdictions.

In an interview, Dr. Waldo Perez, President and CEO of Neo Lithium, told *Resource World* that it is not just the incredible interest in the Tesla 3 electric car, but also the fact that other factories or mega-factories are being built around the world to manufacture lithium-ion batteries. For example, Japanese company TDK plans to spend over US \$841 million by 2017 to ramp up production of lithium-ion batteries at its plant in Fujian Province, China. TDK expects demand for thin-film battery products to grow for use in notebook PCs, robots and smartphones.

The battery subsidiary of German automaker Daimler plans to build a US \$544 million lithium-ion battery plant Q3 this year. The factory will produce batteries for electric and hybrid Mercedes-Benz and Smart cars, along with stationary energy storage products for commercial and residential customers.

As well, Samsung SDI's newly completed electric vehicle battery production facility in Shaanxi Province, China, was recently opened by the Korean company. This is the first "top" battery manufacturer to develop an electric vehicle (EV) battery production plant in China. Demand is stronger in Asia than in the rest of the world.

Perez said that Tesla has stoked a lot of excitement in the lithium space with its gigafactory plans. Benchmark Mineral Intelligence estimates the Nevada factory could need up to 25,000 tonnes of lithium by 2020, and it is not the only gigafactory to come on board. Several countries are already seeing the benefits of utilizing electric vehicles to decrease pollution in the inner cities. Some countries have included financial incentives, or tax incentives to promote the purchase of lower emissions (hybrids) or no emissions (full electric) motors.

"Car manufacturers are not the only market for more powerful, more efficient batteries," said Perez. "We also need to consider the potential of utilizing batteries in houses and other appliances (lawn mowers, hand tools, etc). We do



Checking out lithium ore at Talison Lithium's Greenbushes lithium operations located directly south and immediately adjacent to the town of Greenbushes in Western Australia, approximately 250 km south of Perth. Photo courtesy Talison Lithium Pty Ltd.

expect lithium demand to grow just based on the number of plants designed to build batteries."

Perez notes that the US Geological Survey stated in its 2016 report on lithium: "Lithium consumption for batteries has increased significantly in recent years because rechargeable lithium batteries are used extensively in the growing market for portable electronic devices and, increasingly, are used in electric tools, electric vehicles, and grid storage applications".

Perez went on to comment, "Like most of the mining industry, only the most competitive projects in terms of CAPEX investment and ongoing OPEX will be successful."

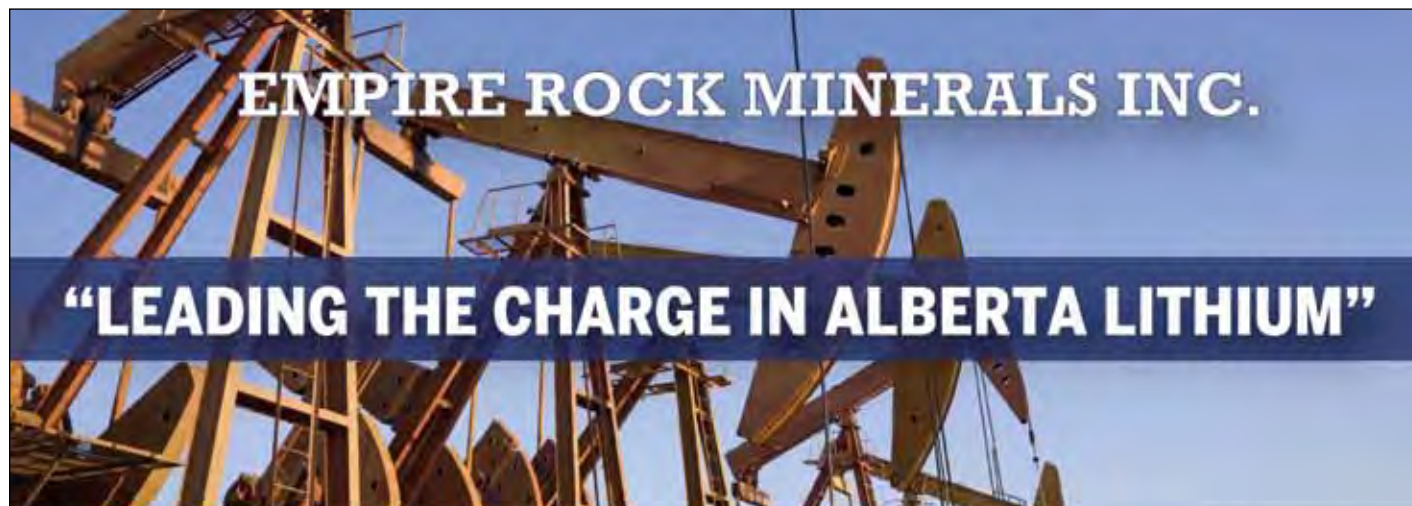
Regarding whether the processing of lithium brine resources is an economical process with a high margin, Perez stated, "It depends. Lithium is found in rocks, clays or brine; how much processing you need for a product that you can sell varies. It is usually a combination of low CAPEX and low OPEX that brings a higher margin. In this case, I would favour brines as lower cost of extraction vs rocks or clays as higher costs of extraction. If you are crushing, grinding, milling, leaching and concentrating in your plant, you are looking at a considerable CAPEX and OPEX. If you are just evaporating a pond because you have natural brine, then it is a lot simpler operation and considerably lower CAPEX.

Lithium is also widely used in the making of glass, ceramics and pharmaceuticals. China is the largest buyer. ■

# 50+ lithium companies to watch

<b>92 Resources Corp.</b>	[NTY-TSXV]	Hard rock Hidden Lake Project, Northwest Territories
<b>Aberdeen International Inc.</b>	[AAB-TSX]	Sal de los Angeles lithium brine project, Argentina – 50%
<b>Albemarle Corp.</b>	[ALB-NYSE]	Silver Peak lithium brine mine, Nevada
<b>Aldever Resources Inc.</b>	[ALD-TSXV; ALDVF-OTC; 17G1-FSE]	Millers Playa brine project, Nevada
<b>Alix Resources Corp.</b>	[AIX-TSXV; ARXRF-OTC; 37N-FSE]	Fish Lake, Nevada; Lithium Australia Electra Project JV
<b>Alset Energy Corp.</b>	[ION-TSXV]	Wisa Lake Project, Ontario
<b>American Lithium Corp.</b>	[LI-TSXV]	Fish Lake Valley brine project, Nevada
<b>Ashburton Ventures Inc.</b>	[ABR-TSXV; ASHXF-OTC; ARB-FSE]	Elon and Area 51 brine projects, Nevada
<b>Athabasca Nuclear Corp.</b>	[ASC-TSXV]	Beaverhill brine project, Alberta
<b>Bacanora Minerals Ltd.</b>	BCN-TSXV; London	Sonora lithium project, Mexico
<b>Belmont Resources Inc.</b>	[BEA-TSXV; L3L-FSE]	Kibby Basin brine project, Nevada
<b>Canadian International Minerals Inc.</b>	[CIN-TSXV; CDNMF-OTC]	Leduc lithium brine project, Alberta
<b>Critical Elements Corp.</b>	[CRE-TSXV]	Rose lithium-tantalum project, Québec
<b>Cypress Development Corp.</b>	[CYP-TSXV; CYDVF-OTC]	Clayton Valley brine project, Nevada
<b>Dajin Resources Corp.</b>	[DJI-TSXV; DJIFF-OTC; C2U-FSE]	Alkaki Lake and Teels Marsh brine projects, Nevada
<b>Durango Resources Inc.</b>	[DGO-TSXV; ATOXF-OTC; 86A-FSE]	Hard rock lithium project, Québec
<b>Empire Rock Minerals Inc.</b>	[EPR-TSXV]	Fox Creek brine project, Alberta
<b>Enertopia Corp.</b>	[TOP-CSE]	Lithium brine project, Nevada
<b>Eureka Resources Inc.</b>	[EUK-TSXV]	Gemini brine project, Nevada
<b>Everton Resources Inc.</b>	[EVR-TSXV; EVRRF-OTC; ERV-FSE]	Blue Sky Jackpot Project,
<b>Far Resources Ltd.</b>	[FAT-CSE]	Hard rock Zoro 1 Project, Manitoba
<b>FMC Corp.</b>	[FMC-NYSE]	Lithium brine mine & plant, Argentina
<b>Globex Mining Enterprises Inc.</b>	[GMX-TSX; GLBXF-OTCQX; G1M-FSE]	Beryllium, caesium, lithium, tantalum, rubidium project Nova Scotia
<b>Goldon Resources Ltd.</b>	[GLD-TSXV]	Patterson Lake lithium project, Ontario
<b>Great Atlantic Resources Corp.</b>	[GR-TSXV; PRZCF-OTC; PHO-FSE]	South Quarry tungsten-lithium project,
<b>Great Thunder Gold Corp.</b>	[GTG-TSXV; MLBVD-OTC; M4K-FSE]	Hard rock lithium project, Québec
<b>Iconic Minerals Ltd.</b>	[ICM-TSXV; BVTED-OTC; YQGA-FSE]	Bonnie Claire brine project, Nevada
<b>International Lithium Corp.</b>	[ILC-TSXV/Pioneer Resources]	Raleigh Project, Ontario – 100%; Mavis Project, Ontario – 20%
<b>Lithium Americas Corp.</b>	[LAC-TSX]	Cauchari-Olaroz Mine, Argentina – 50/50 JV with SQM
<b>Lithium Corp.</b>	[LTUM-OTCQB]	Fish Lake Valley brine project, Nevada
<b>Lithium X Energy Corp.</b>	[LIX-TSXV]	CVL brine project, Nevada
<b>Matica Enterprises Inc.</b>	[MMJ-CSE]	Elon & McGee brine projects, Nevada
<b>MGX Minerals Inc.</b>	[XMG-CSE; 1MG-FSE]	Lithium brine projects, Alberta
<b>Nemaska Lithium Inc.</b>	[NMX-TSXV; NMKEF-OTCQX]	Whabouchi Project & plant, Québec
<b>Neo Lithium Corp.</b>		Lithium brine project, Argentina

<b>Nevada Energy Metals Inc.</b>	[BFF-TSXV]	BFF-1 brine project, Nevada; San Emidio brine project, Nevada
<b>Nevada Sunrise Gold Corp.</b>	[NEV-TSXV; NVSGF-OTC]	Atlantis brine project, Nevada
<b>Noram Ventures Inc.</b>	[NRM-TSXV]	Alberta brine project – JV with CIN
<b>Orocobre Ltd.</b>	[ORL-TSX; ORE-ASX]	Olaroz lithium mine & plant, Argentina
<b>Pacific North West Capital Corp.</b>	[PFN-TSXV; PAWEF-OTC; P7J-FSE]	Clayton Valley brine project, Nevada; Lithium One Project, Manitoba
<b>Plateau Uranium Inc.</b>	[PLU-TSXV]	Macusani uranium-lithium project, Peru
<b>Pure Energy Minerals Ltd.</b>	[PE-TSXV; HMGLF-OTC]	Clayton Valley South brine project, Nevada
<b>Resolve Ventures Inc.</b>	[RSV-TSXV]	Neptune brine project, Nevada – 50% JV with Nevada Sunrise
<b>Rock Tech Lithium Inc.</b>	[RCK-TSXV; RCKTF-OTC; RJIA FSE]	Georgia Lake hard rock project, Ontario
<b>Sienna Resources Inc.</b>	[SIE-TSXV; HBNRF-OTC; HRJ-FSE]	Esmeralda & Clayton Valley Deep brine projects, Nevada.
<b>Spearmint Resources Inc.</b>	[SRJ-TSXV]	Wabouchi Lake West, Preisac, Québec
<b>SQM</b>		Lithium mine & plant, Atacama Desert, Chile
<b>Standard Graphite Corp.</b>	[SGH-TSXV; DARDF-OTC]	Hard rock lithium project, Québec
<b>Talison Lithium Ltd.</b>		Lithium producer, Western Australia & Chile
<b>Ultra Lithium Inc.</b>	[ULI-TSXV; ULTXD-OTC]	South Big Smoky, Nevada; Balkans Project, Serbia, Georgia Lake, ON
<b>Veraz Petroleum Ltd.</b>	[VRZ.H-TSXV]	Walker Lane Trend brine project, Nevada
<b>Victory Ventures Inc.</b>	[VWN-TSXV; WVO-FSE]	Fox Creek-Swan Hills brine project, Alberta
<b>Voltaic Minerals Corp.</b>	[VLT-TSXV]	Green Energy brine project, Utah
<b>Zadar Ventures Ltd.</b>	[ZAD-TSXV; ZAV-FSE]	Clayton Valley brine projects, Nevada
<b>Zimtu Capital Corp.</b>	[ZC-TSXV; ZCT1-FSE]	Invests in & farms out lithium projects



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