

SUMMARY: LITHIUM A METAL WITH POTENTIAL

The prime sources for lithium today are the brine lakes, salt flats, etc. in the Andes distributed over Argentina, Bolivia and Chile. The largest resources for Li are in Bolivia but are not being extensively exploited owing to the Bolivian government's attitude of wanting to totally control the resource but it lacks the capital to execute in a major way. Right now they are embarked on a program which calls for no outside assistance and use only internally developed processing technologies, a wheel re-invention scenario.

In the meantime, Chile is the leading producer from their lithium brine resources. Production is also occurring in Argentina, China and Nevada from salt brines. There are significant hard rock mining activities for lithium in Australia and some in China. China is the world's largest consumer of lithium for battery production while not being a major producer. Most lithium ion batteries are produced in Asia.

The most exciting item uncovered during the research on lithium was the promise of a lithium air battery. This battery couple has been looked at with increasing intensity in the last few years owing to potentially high energy density which, theoretically, could approach that of gasoline. Much of the research is happening in the US and IBM has a "500 mile" project to produce a battery that would give a vehicle a 500 mile range. Achievement of this goal could obviate the need for fuel cell vehicles and their expensive infrastructure. ICE powered vehicles could also become fossils.

This technology could offer some interesting investment opportunities in lithium, lithium battery companies and the lithium "infrastructure". Lithium sourcing is covered in this memo. The trail and progress of the lithium air battery technology will be the subject of a separate memo. The lithium "infrastructure" would be the support services to facilitate a lithium powered transportation sector. For example, the batteries would require recharging which may not be a fast process so some sort of battery swap service might be needed.

In lithium sourcing, the focus was on companies which have some lithium mining activity in Nevada. There is one major company, Chemetall, a division of Rockwood Holdings (NYSE: ROC), it is a large player in the lithium arena with mines, lithium processing and batteries. ROC has over 50% of its \$3+ billion/year sales in Europe.

The other lithium mining interests in Nevada are juniors, small companies. None have full scale resource mining operations in action, yet. Exploration and property development activities are occurring in Nevada. They are all public companies listed mostly on the Toronto exchange, penny stocks. They are all brine processors except for Western Lithium which has an extensive clay based resource in northern Nevada.

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LITHIUM: A CRITICAL MATERIAL

The US DOE recently released their 2011 Critical Materials Strategy report¹. While a predominant position was given to analyses of the US' position in the world of rare earth elements (REE), the report also noted that lithium is becoming an element of concern. Lithium was the only element to jump from a "not critical" level in the near term (0-5 years) to a 'near-critical' level in the medium term (5-15 years)². This status change is shown in Figure 1.

Short Term	Medium term
Critical	Critical
<ul style="list-style-type: none"> • Dysprosium • Europium • Neodymium • Terbium • Yttrium 	<ul style="list-style-type: none"> • Dysprosium • Europium • Neodymium • Terbium • Yttrium
Near-Critical	Near-Critical
<ul style="list-style-type: none"> • Cerium • Indium • Lanthanum • Tellurium 	<ul style="list-style-type: none"> • Lithium • Tellurium
Not Critical	Not Critical
<ul style="list-style-type: none"> • Cobalt • Gallium • Lithium • Manganese • Nickel • Praseodymium • Samarium 	<ul style="list-style-type: none"> • Cerium • Cobalt • Gallium • Indium • Lanthanum • Manganese • Nickel • Praseodymium • Samarium

Figure 1: Distribution of Materials by Criticality Category Changes from Near-term to Medium Term (2011 Paper)

The distributions of the lithium deposits around the world are not concentrated in one geopolitical entity like the REEs. Though, presently the largest deposits currently being exploited are in Chile there are significant deposits of lithium in the US.

As with the REEs, lithium deposits usually contain additional elements, the recovery processes are chemically more straightforward than those used for the chemically very similar REEs.

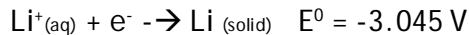
¹ US DOE, Critical Materials Strategy, December 2011

² Five rare earth elements retained their critical status in the same time frame.

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LITHIUM:

Lithium is element number 3 on the Periodic Table. It is the first element in the alkali metal series. As such it is quite electropositive, that is, it will readily lose an electron to any acceptor (oxidant). This property coupled with its light weight makes lithium an ideal and important candidate for incorporation in batteries.



Lithium has a melting point of 180.54C, boiling point of 1342C, specific gravity of 0.534 (20C), and valence of 1. It is the lightest of the metals, with a density approximately half that of water. It floats! Under ordinary conditions, lithium is the least dense of the solid elements. It has the highest specific heat of any solid element. Metallic lithium is silvery in appearance. It reacts with water, but not as vigorously as does sodium. Lithium imparts a crimson color to flame, although the metal itself burns a bright white. Lithium is corrosive and requires special handling. Elemental lithium is extremely flammable³.

LITHIUM: WHERE IT IS

Lithium deposits are found all over the world although the brine deposits in the Andean deserts in Chile and Bolivia have become the leading commercial sources⁴, see Figure 2 map. Most of the commercial activity is located in Chile. The Bolivian deposits, while significant, will be slow in coming to market owing to the government's reluctance to accept outside capital to develop this resource.



Figure 2: Location of Major Lithium Deposits around the World

³ <http://chemistry.about.com/od/elementfacts/a/lithium.htm>

⁴ International Lithium Corp., Presentation at the Vancouver Electric Vehicle Association May 2010

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The distribution of the lithium deposits around the world has been described by Western Lithium in August, 2011⁵. The lithium deposits in Figure 3 are shown by location, status and prime mover in the project development. It is seen that the largest producing organization is SQM/Rockwood with mines in Chile and the US, at Silver Peak, NV.

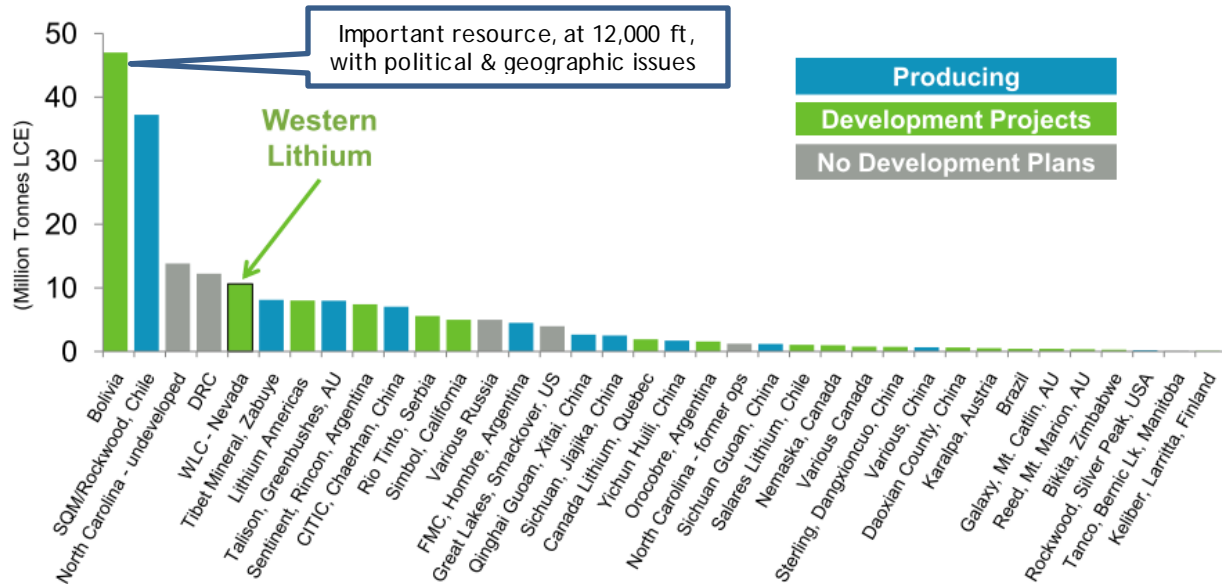


Figure 3: World Lithium Resources

The estimated annual production by the major suppliers and their locations are shown in Figure 4⁶. Lithium values are usually stated as lithium carbonate (Li_2CO_3), the primary article of commerce. The carbonate contains 18.8% Li; it is not hygroscopic and is generally stable when exposed to the atmosphere.

Company	Country	Deposit Type	Li2CO2 Eqvt
Talison	Australia	Spodumene	10,000 tonnes
SQM	Chile	Brine	32,600
Chemetall	Chile	Brine	13,000
Chemetall	US	Brine	3,000
FMC Chemical	Argentina	Brine	16,600
Qinghai CITIC	China	Brine	10,000
Various Others	China	Spodumene	15,000
TOTAL			100,200 tonnes per year

Figure 4: Major Lithium Producers, Quantities as Lithium Carbonate Equivalents

⁵ <http://www.westernlithium.com/investors/presentations>

⁶ Reference 2

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LITHIUM: WHERE IT IS USED:

Lithium has a large variety of uses in industry and medicine from the ubiquitous Li-ion batteries to pharmaceutical use as a stabilizer for bipolar disorders. Lithium finds most use in the carbonate and hydroxide forms (about 50% of demand). Mineral forms of lithium (from hard rock mining) account for 25% of consumption with chemicals and metal/alloys making up the remainder. Batteries have been the main driver of demand growth and this growth should continue in the 2010s. It is expected that the other areas may see lower growth rates.⁷

These uses in the time period of 2000-2009 are graphically presented in Figure 5 (Reference 7). Projected consumption of lithium for the period 2008-2013+ is given in Figure 6.

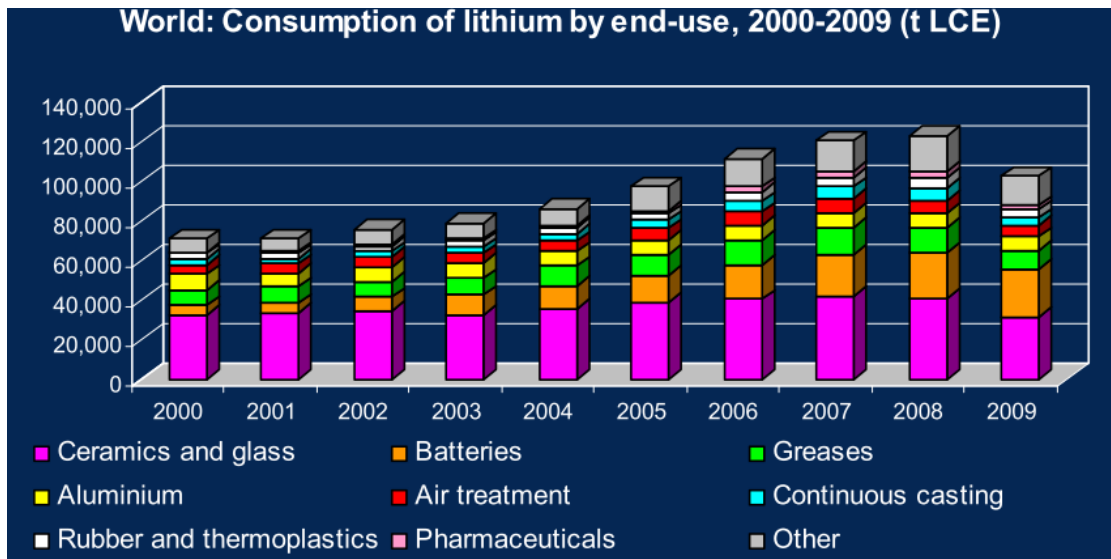


Figure 5: World Consumption of Lithium by End Use 2000-2009

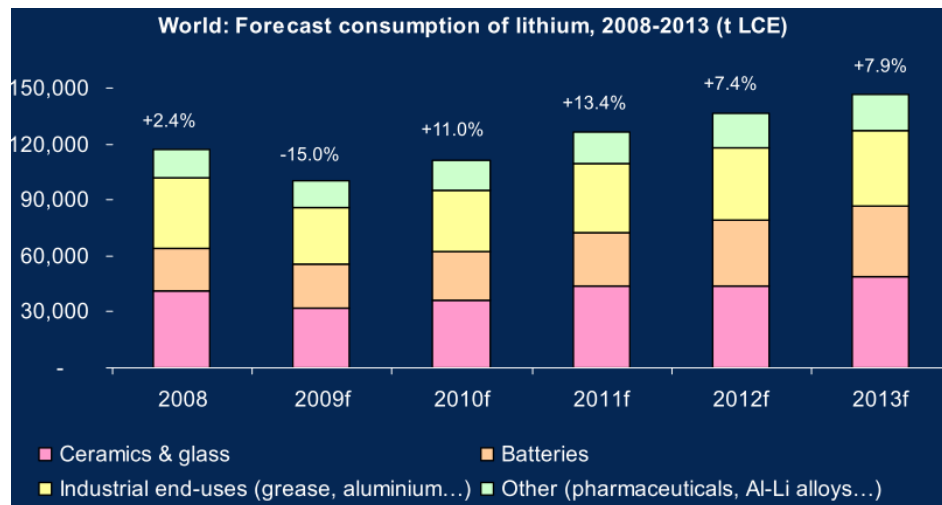


Figure 6: Projected World Consumption of Lithium by End Use 2008-2013

⁷ R. Baylis, Roskill Information Services, Presentation in January 2010, Las Vegas "Lithium Supply & Markets"

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The growth of electric vehicle deployment is expected to be the main driver for lithium usage in the out years. This projected growth through 2020 is shown in Figure 7. Both battery powered vehicles and fuel cell powered vehicles will need the batteries, however the latter would have a lower volume usage. Even with the 5% penetration scenario, it is anticipated new source capacity would not be needed until the 2015 timeframe, see Figure 8. A more rapid market penetration of electric vehicles, including bicycles⁸, would bring this new capacity need backward towards the present.

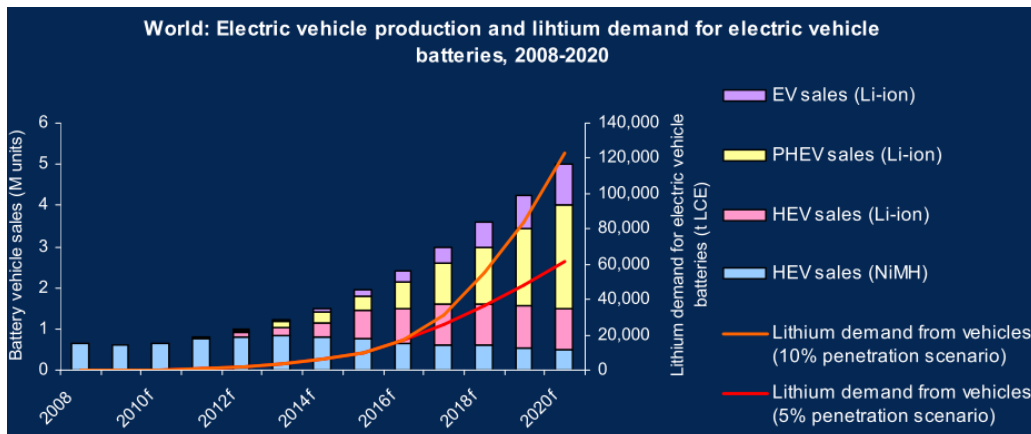


Figure 7: Projected Electric Vehicle Growth and Lithium Production to 2020

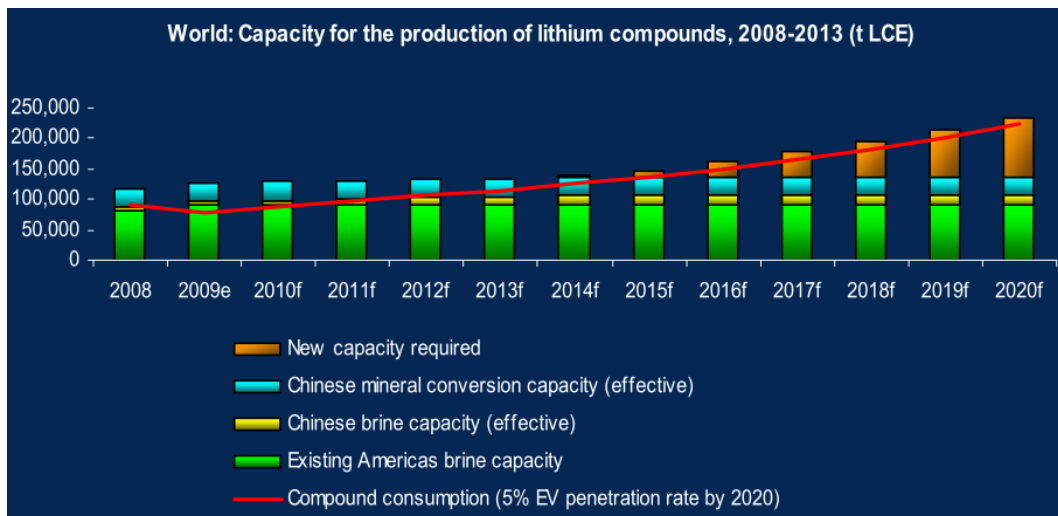


Figure 8: Projected of World Capacity for Lithium Use to 2020

The projected demands for lithium as presented by a major lithium supplier are a bit more optimistic than given by Roskill. Another estimate for the growth in demand for vehicle batteries has been given by Chemetall⁹, a lithium supplier and a division of Rockwood

⁸ <http://www.nytimes.com/2010/02/01/business/global/01ebike.html> Production in 2007 in China was about 22 million units.

⁹ <http://www.chemetalllithium.com/>

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Holdings¹⁰ (ROC), and is shown in Figure 9. This vehicle demand was extrapolated to the demand increase for lithium carbonate, the lithium starting material for Li battery construction and is shown in Figure 10.

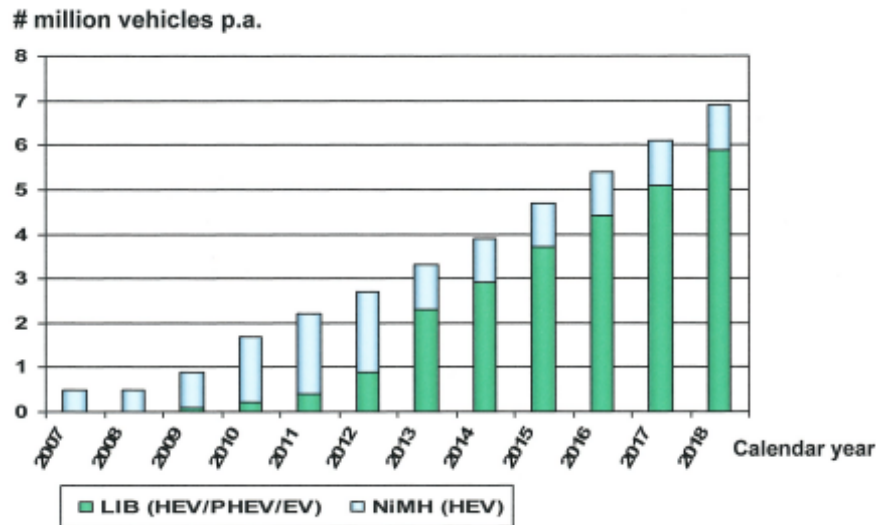


Figure 9: Rockwood Holdings Estimate for Electric Vehicle Growth to 2018

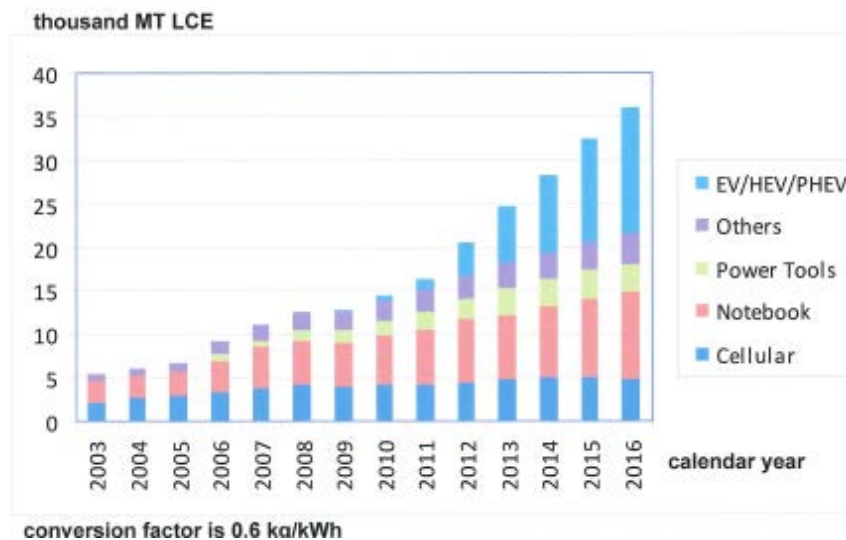


Figure 10: Estimated Lithium Carbonate Demand and Use to 2016

LITHIUM: HOW IS IT RECOVERED

Lithium resources occur in 2 major ore types around the world: brines, salt laden liquids; and, solid mineral ores. There is one quasi-intermediate resource, hectorite clay, a solid non-mineral source that is found in a large deposit in northern Nevada. The recovery of lithium values requires different processing techniques for each of these source types. The processing

¹⁰ www.rockwoodspecialties.com/rock_english/media/ppt_files/Rockwood_Holdings_Inc_Sep2011.ppt
Presentation to Credit Suisse Chem & Ag Science Conference 9/13/2011

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of the brine sources can be considerably less costly than working the solid mineral sources as it is usually easier to pump around a liquid than truck around and process solid rocks. That being said, the mineral resources do have higher levels of lithium, Figure 11¹¹.

Hard Rock:	Spodumene	$\text{LiAlSi}_2\text{O}_6$	8.0% Li_2O
	Petalite	LiAlSiO_4	4.9% Li_2O
Soft Rock:	Hectorite	$\text{Na}_{0.3}(\text{Mg},\text{Li})_3\text{Si}_4\text{O}_{10}(\text{OH})_2$	1.2% Li_2O
	Jadarite	$\text{LiNaSiB}_3\text{O}_7(\text{OH})$	7.3% Li_2O
Brines:	Continental	variable chemistry	200-2700 ppm Li
	Geothermal	other elements are	up to 400 ppm Li
	Oilfield	important such as	up to 700 ppm Li
	Seawater	K, B, Mg, Br	0.1-0.2 ppm Li

Figure 11: Typical Lithium Levels in the Various Resources

Mr. Clarke also presented another comparison between brine and mineral sources for lithium and this is shown in Figure 12. Cost comparisons between the 2 processing routes are shown in Figure 13 for brines and Figure 14 for spodumene (8% Li).

Brines or Mines for Li_2CO_3

	Brines	Mines
Capital Expenditure	Lower	Higher
Unit production cost	Lower	Higher
Grade	Lower/Variable	Higher/Consistent
Recovery	Lower	Higher
Deposit geology	Highly variable	More predictable
Mineral chemistry	Highly variable	Predictable
By-product credits	Large potential	Some potential
Production lead time	Longer (harvesting)	Shorter (mining)
Ease for expansion	Resource dependent	Resource dependent
Process complexity	Variable – chemistry	Est physical/chemical

Figure 12: Specific Point Comparisons between Brine and Mineral Sources

Process Step	Chemical / Driver Cost	Cost (\$/tonne Li_2CO_3)
Remove Magnesium	Slaked lime ($\text{Ca}(\text{OH})_2$)	180 (per unit Mg:Li)
pH adjustment	Hydrochloric acid (HCl)	20
Remove B/Sulphates	Calcium Chloride (CaCl_2)	240
Convert to carbonate	Soda ash (Na_2CO_3)	760
Plant Amortization	N/A	1,067
Total		2,267 (at Mg:Li of 1:1)
Variable cost per tonne		1,200 (at Mg:Li of 1:1)



The Mg/Li ratio is key to the economics of recovery. At Mg/Li ratios >2 it becomes more difficult. Some Chinese brines have Mg/Li ratio at 20 or higher; they are very difficult to process.

Figure 13: Brine Production Process & Costs Breakdown

¹¹ G. Clarke, Lithium Oversupply? Rare Earths, Specialty Metals Investment Summit, 17 March 2011 www.objectivecapitalconferences.com

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Process Step	Chemical / Driver Cost	Cost (\$/tonne Li ₂ CO ₃)
Extract ore	N/A	<1,200
Spodumene	N/A	500
Calcining	Oil	230
Pulverizing Concentrate	N/A	100
Leaching	Sulfuric Acid (H ₂ SO ₄)	585
Washing	Water	0
Convert to Carbonate	Soda Ash (Na ₂ CO ₃)	505
Plant Amortization	N/A	3,333
Total		<\$6,453
Variable Cost/Tonne		<\$3,120



Figure 14: Spodumene Production Cost Breakdown¹²

The intermediate soft rock, hectorite clay, is the basis of the Western Lithium resource in northern Nevada. The company contends that it converts the mined clay to finished product in 24 hours using the process flow diagram given in Figure 15¹³. Note the presence of a

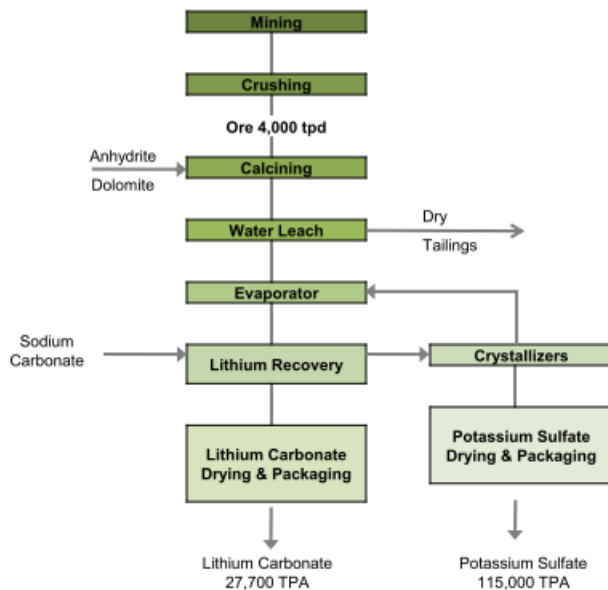


Figure 15: Western Lithium's Process Diagram

second saleable product, potassium sulfate.

Brine processes are a more direct route to lithium which makes them a good source for batteries. Presently, batteries amount to less than 30% of lithium consumption. Some of the other lithium uses do not require the element, such as glass, greases and metals do not need elemental lithium but can use some of the intermediates found during mineral processing. Thus the 2 lithium sources are not always in direct competition.

¹² Mike Seib, International lithium Corp, Vancouver Electric Vehicle Assoc May 2010

¹³ www.westernlithium.com Corporate presentation August 2011

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LITHIUM: IS THERE A "HIDDEN" DRIVER

The manufacturing of generic lithium ion batteries is concentrated in China, Japan, and other countries in Southeast Asia. The operations are highly mechanized. It is likely that the manufacturing of the current technology lithium ion batteries will remain in place. However...

It looks there is a developing, quite likely disruptive, lithium battery technology which should be a compelling driver for increased lithium use. It has been lurking, almost in the background, for past couple of years. The advance is the development of the lithium air battery. This battery uses atmospheric oxygen as the cathode depolarizer, i.e., the electron acceptor. An air cathode eliminates the traditional cathode structural elements and materials which results in substantial weight and volume reductions in the battery¹⁴.

The elimination of much of the cathode baggage has given the lithium air battery a potential energy density of approximately 12 kWh/kg. For reference, gasoline has an energy density of 13.6 kWh/kg (HHV for gasoline) or 12.6 kWh/kg (LHV for gasoline). ICE propulsion of vehicles is not a very energy efficient process with only about 12.6% (urban use, 20.2% highway) of the gasoline energy being used to move the vehicle¹⁵, see Figure 16. Thus, the 13.6 kWh/kg energy density of gasoline produces only ≈ 1.7 kWh/kg at the driving wheels. The lithium battery at 12 kWh/kg should actually deliver more than 1.7 kWh/kg to the driving wheels owing to the better performance (energy efficiency) of electric motors.

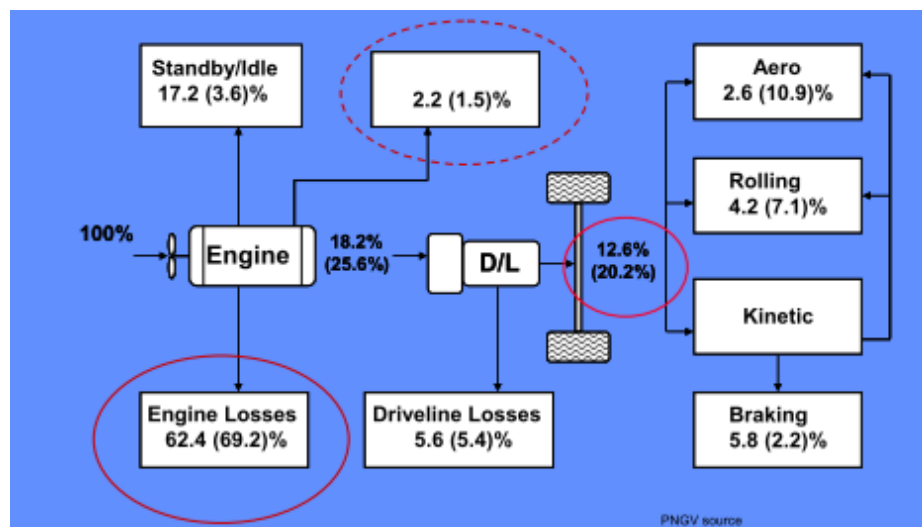


Figure 16: Energy Distribution from an ICE Driven Mid-size Vehicle

A quick search found that some of the leading research is being conducted by ANL (Argonne Nat'l Lab) and PNNL with Princeton. Also, there is a deliberate effort at IBM with a stated goal of developing a Li air battery which will give a car a 500 mile range¹⁶. Now, that would

¹⁴ Much of this information taken from http://en.wikipedia.org/wiki/Lithium%E2%80%93air_battery The energy conversions have been verified; lithium air batteries will be the subject of a separate report.

¹⁵ J. Yang, Thermoelectric Technology for Automotive Waste Heat Recovery, 2007 DEER Conference Detroit, MI August 15, 2007.

¹⁶ http://almaden.ibm.com/st/smarter_planet/battery/

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be a significant advance for electric vehicles giving them a significant advantage over advanced ICE or fuel cell vehicles.

How would this work...The batteries would still need to be charged and, with lithium, it probably would not be a fast process. Lithium, on charging, i.e., metal re-deposition, has a tendency to form dendrites which can lead to internal shorting. One possibility is that service stations now would become battery swap stations. In this scenario the batteries would need to be leased, not owned, by the vehicle owner.

The lithium air battery technology will be the subject of a separate technology - investment opportunity report. From what little information available it area does appear to have a great potential. However, as of now (2017) no organization has fielded a lithium air battery.

LITHIUM: DIVERSITY OF SOURCES

This memo is a sidecar to the REE memo, in progress. The reading of the DOE report noted that in the close out-term, 5 years and beyond, access to lithium resources may become near critical. So, an investigation was initiated on the state of the world's lithium resources. Several issues stood out over the milieu:

Present sources: Most of the world's lithium supplies come from the high deserts in South America, Argentina, Bolivia and Chile. The brine resources in Argentina and Chile are being actively exploited; those in Bolivia (a special case, see below) are under development. A second large source is in Western Australia. Most of the lithium destined for batteries is shipped to Japan and China, the major battery producers.

Bolivia: Bolivia holds the largest single lithium resource in the world at the Salar de Uyuni desert. The Salar de Uyuni is a high desert salt flat of about 10,580 km² at an altitude of 3,656 m (12,000 ft)¹⁷. Its brines probably contain over 50% of the world's lithium reserves. The Bolivian government has decided to go it alone in exploiting this resource, including development of their own processing technologies. A real let's re-invent the wheel proposition. There is the additional factor of losing the war with Chile and access to the sea. They'll have to be nice to Chile.

As a result of these actions the development of the resource is on a slow track. Lithium recovery at Salar de Uyuni is also hampered by the slow evaporation rate at this altitude and its low temperatures. Also, as a desert, there are water supply issues for brine processing. To achieve their goals, Bolivia country will eventually accept some outside help, probably from China.

China: China has lithium resources but they are not as "friendly" as those in South America or Australia. The Chinese brines have large Mg/Li ratios which make them difficult to process. However, they are the world's leading battery manufacturer which makes them a major lithium consumer.

Vertical Integration: There are some instances of vertical integration but they come from the battery makers in China and Japan down to some of the resource sources. One of the

¹⁷ Salar de Uyuni is so flat and so bright that earth orbiting satellites use for altitude calibrations.

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companies which is listed below is an integrated chemical conglomerate, Chemetall (ROC), has operations in Chile and Nevada.

Governmental Issues: Some of the countries of operation have some uncertainty in the changes in governmental regulation towards resource extraction. In particular, a changing rules environment in Argentina was not by one company listed below; International Lithium is hedging its Argentinian operation with an operation in Nevada.

Public Companies: Virtually all of the lithium resource companies are public companies. A majority of these are junior companies and trade on the Toronto, TSX.V exchange... "penny" stocks. Rockwood Holdings (ROC) is traded on the NYSE and has a much higher valuation. One company, Simbol, operating near the Salton Sea is private with venture funding from Mohr Davidow and Firelake. Simbol¹⁸ is a geothermal power company with a mineral by-product. There is an extensive of lithium mining and exploration companies in Appendix A.

Nevada: You may have noticed a recurring theme of companies mentioned above in that have operations in Nevada. This is not by chance, if any interest is developed in the companies listed below we'll need some geology, mining assistance in their evaluation. UNLV could be a good source for that knowledge as many of the operations are less than a day's drive from LV. Also, the operations in Nevada are not subject to governmental whims as once permitted they can operate. Most have been operational for some time.

COMPANIES IN THE LITHIUM ARENA

Chemetall, owned by Rockwood Holdings, Inc., trading symbol ROC on the NYSE. The company has annual sales of about \$3 billion. Chemetall is part of the Specialty Chemicals Division which has sales of \$1.278 billion with a margin of 25.7%. . A majority (54%) of the company's sales are in Europe.

The September 2011 presentation¹⁹, claims that they are the largest global producers of lithium products, including batteries. Chemetall processes lithium brines in both Chile, its largest Li venture, 200 km east of Antofagasta. It also has a smaller brine operation at Silver Peak, NV, 350 km north of LV. Rockwood has lithium facilities near Antofagasta, Chile and Silver Peak NV for lithium brines; and lithium processing facilities in New Johnsonville, TN, La Porte, TX, Kings Mountain, NC, Langelsheim, Germany and Taichung, Taiwan.

Rockwood is a major lithium player with a large part of their sales in lithium. On June 16, 2011, Rockwood announced a 20% price increase of its lithium products, it appears to have stuck²⁰. Rockwood may be the driving company in the lithium world.

Update: Rockwood Holdings merged with Albemarle Corporation in 2014.

¹⁸ Simbol has ceased operation.

¹⁹

http://www.rockwoodspecialties.com/rock_english/media/ppt_files/Rockwood_Holdings_Inc_Sep2011.ppt and <http://www.chemetall.com/>

²⁰ <http://finance.yahoo.com/news/Rockwood-Holdings-lithium-theflyonthewall-4122497018.html>

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The remaining companies listed are termed “junior” as they are smaller operations in the lithium world. Some may even be in early stages of development of the resource. All however, have, at least, one of their operations in Nevada. The active lithium areas in Nevada are shown in Figure 17.



Figure 17: .Lithium Resource Areas in Nevada

The Chemetall (Rockwood) brine field in the Clayton Valley is the only active producing lithium resource in Nevada today. A summary of lithium activities and the element’s supply and demand analysis has been prepared by Dundee Securities Corporation²¹.

Rodina Lithium Inc. main US properties are in the Clayton Valley, Nevada, and surround the Chemetall property which is a producing entity. The company also has Brine operations in Argentina. It is a public company, TSX.V: RM and OTCQX: RDNAF. It has an investment from Shanshan, a large Chinese lithium ion battery materials provider²². A corporate snapshot is shown in Figure 18. Figure 19 shows the Rodina properties and the Chemetall property.

²¹ research.dundeesecurities.com/Research/Lithium102809.pdf

²² <http://www.rodinalithium.com/inSitePresent/> December 2011 Presentation

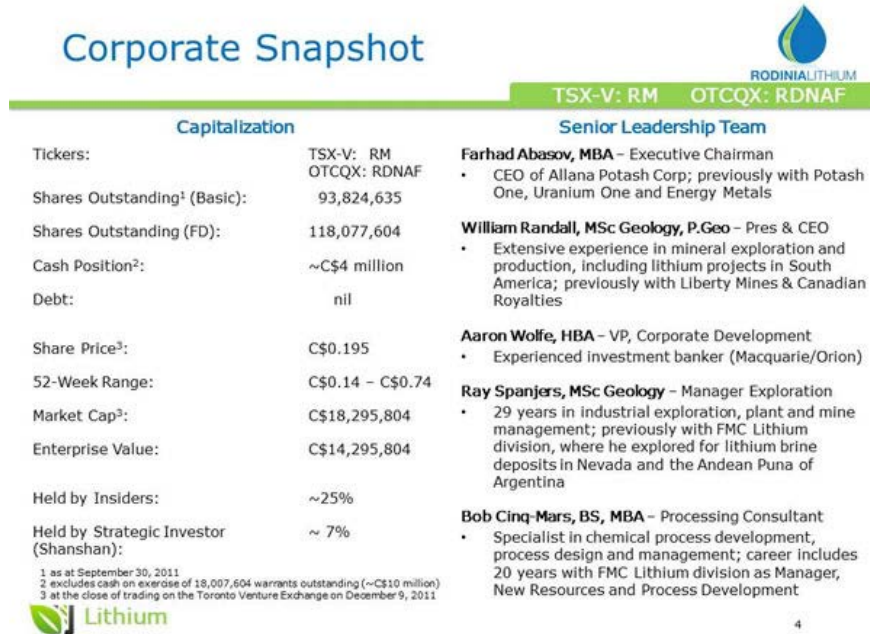


Figure 18: Rodina Lithium Corporate Overview

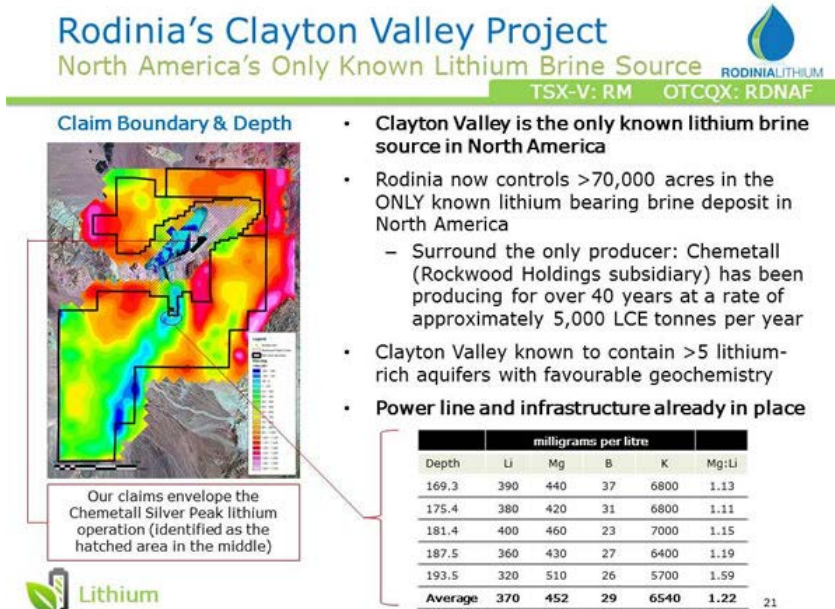


Figure 19: Rodina Properties in the Clayton Valley

American Lithium Minerals, Inc., (OTC-BB: AMLM) is another company with properties near the Clayton Valley, unlike the others it is headquartered in Nevada in Henderson²³. AMLM's main property, called Borate Hills, is in the Montezuma Valley in Esmeralda County. It appears that they are still in the development stage, read raising capital, for their properties. The properties also contain significant amounts of boron.

²³ <http://www.americanlithium.com/>

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International Lithium Corp²⁴. (TSX.V: ILC) is a Canadian Company with active projects in Argentina, Canada, Ireland and USA, near Clayton Valley in Nevada. It appears to be a development stage company in all of its properties. The Nevada properties surround the Clayton Valley. The locations are shown in Figure 20.



Figure 20: International Lithium's Nevada Properties

Western Lithium²⁵ is in Kings Valley, Nevada, up near the Oregon Border. It is a public company, TSX: WLC and OTCQX: WLCDF. The resource is a lithium and potassium containing clay, hectorite. It is a property which was held and surveyed by Chevron in the 1980's. It appears that they are in pilot development using a process shown in Figure 15. The plan for resource recovery is outlined in Figure 21. There is no indication of their progress on this plan.

²⁴ www.internationallithium.com/ILCPP.pdf

²⁵ (www.westernlithium.com)

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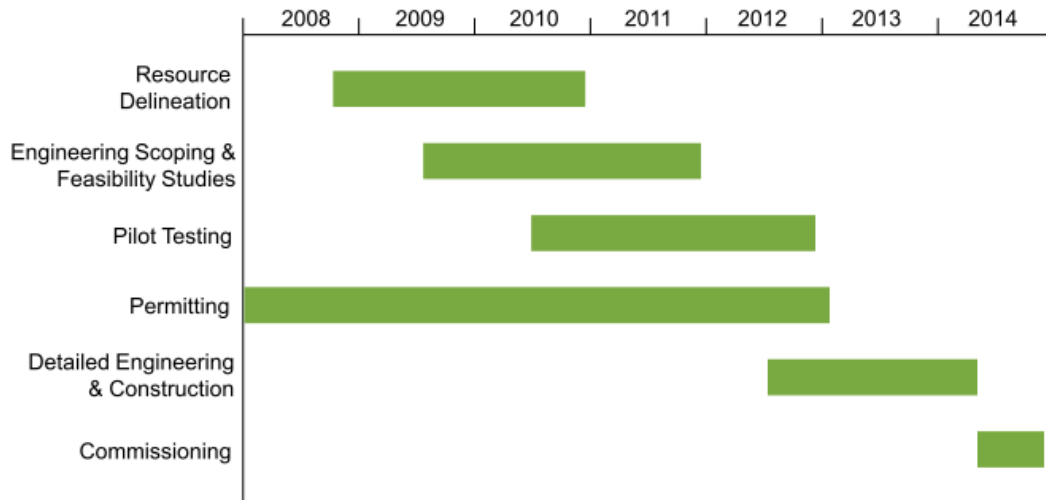


Figure 21: Western Lithium's Resource recovery Timeline

Western Lithium will be the only lithium producer using a clay based resource. Their view on the "advantages" of their approach over that used by the brine sourced producers is summed in Figure 22.

Brine Producers

- 18-24 months from well to product
- Limited production flexibility and variable chemistry
- Geographically concentrated in S.A.

Western Lithium

- 24 hours from mine to product
- Production flexibility and scalability
- U.S. supply source
- Life-of-project consistent grade/chemistry

Figure 22: Western Lithium's Argument for the Hectorite Sourcing for Lithium Carbonate

Appendix A: Some Lithium Mining Companies (2009 Listing)

[lithiumsite.com](http://www.lithiumsite.com) http://www.lithiumsite.com/Lithium_Mining_1JX3.html

Lithium Mining

Resource Companies	Country	Resource
American Lithium	USA	Brines
AmeriLithium	USA, Canada Australia	Brines
Amerpro Resources	USA	Brines
Canada Lithium Corporation	Canada	Minerals
Channel resources	Canada, Alberta	Minerals
China Lithium Products Technology	China	Minerals
China Lithium Products Technology Co., Ltd	China	Minerals
CITIC	China	Brine
Comibol	Bolivia	Brine
Dajin Resources	Argentina	Brine
Electric Metals	USA, Argentina	Brines
Eramet Bollore	Argentina	Brine
First Lithium Resources	Canada, Alberta	Basinal Brine and Mine
Galaxy Resources	Australia	Minerals

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International Lithium	Canada - USA - Argentina - Ireland	Minerals - Brines
Jiangxi Ningdu Taiyu	China	Minerals
Keliber Resources	Finland	Minerals
Lithium Americas Corporation	Argentina	Brine
Lithium One	Canada, Argentina	Minerals, Brines
Lomiko	Chile, USA	Brine
MARIFIL MINES LTD	Argentina	Brines
Mesa Uranium	USA	Basinal Brine
Mineral Hill Industries Ltd	Canada	Minerals
Nemaska Exploration	Canada	Minerals
New World Resources	Bolivia	Brine
North Arrow Minerals Inc	Canada	Minerals
Orocobre	Argentina	Brine
Pacific Wildcat Resources Corp	Mozambique	Minerals
Pan American Lithium	Chile	Brines
Petro Horizon Energy Corp	Canada	Minerals
Reed Resources	Australia	Minerals
Rio Tinto	Serbia	Minerals

LITHIUM: A METAL WITH POTENTIAL

Rock Tech Lithium	Canada	Minerals
Rodinia Minerals	USA, Argentina	Brines
Salares Lithium Inc.	Chile	Brine
Sichuan Ni&Co	China	Minerals
Sichuan Dexin Mining Resources Ltd	China	Minerals
Sichuan Jinchuan	China	Minerals
Simbol Mining	USA	Brines
Sirios Resources	Canada	Minerals
Sterling Group Ventures	China	Brine
The Sentient Group Rincon Lithium	Argentina	Brine
Ultra Lithium	Canada	Minerals, brines
Western Lithium Corporation	USA	Minerals
Western Mining Group	China	Brine
Zhabuye Lithium	China	Brine