

# Obama's Energy Revolution

## It's Clean, It's Green, and its Right Now

By Richard (Rick) Mills

[www.aheadoftheherd.com](http://www.aheadoftheherd.com)

**As a general rule, the most successful man in life is  
the man who has the best information**

"Finding the new driver of our economy is going to be critical. There's no better driver that pervades all aspects of our economy than a new energy economy. ... That's going to be my No. 1 priority when I get into office." President Obama

President Obama and his administration have made policies that are revolutionary in their undertaking. This administration is about to implement a nation wide stimulus resulting in a new revitalized economy based on clean energy.

"A new energy economy is going to be part of what creates the millions of new jobs that we need," President Obama.

With his landslide election he has proven to have plenty of support for the realization of this energy revolution. The election proved that the majority of US Citizens have become tired of depending on foreigners for their energy needs, are green minded, ecologically conscious and have wholeheartedly given their support to clean energy technology.

### The Plan

The U.S.'s \$790 billion economic stimulus plan includes more than \$5 billion in loans, grants, and tax credits to help stimulate the development of large-scale domestic

production of advanced, lithium-ion batteries for hybrid and electric cars. The stimulus plan recently passed by Congress includes \$16.8 billion to promote energy efficiency and the development of renewable energy. A large portion will go toward developing a domestic battery industry including \$2 billion in grants for manufacturing advanced batteries and up to \$2.4 billion in tax credits for building battery plants. Another bonus included is a \$7,500 tax credit for people who purchase plug-in hybrid cars, which will indirectly boost lithium-ion battery production.

“New plug-in hybrids roll off our assembly lines, but they will run on batteries made in Korea. Well I do not accept a future where the jobs and industries of tomorrow take root beyond our borders – and I know you don’t either. It is time for America to lead again.” President Obama

Lithium battery technology is absolutely critical to President Obama’s energy plan. Lithium-ion is the leading battery technology and a hugely important first step towards transforming electric cars from a niche curiosity into a major clean energy revolution for the transportation sector.

Lithium batteries could be part of the answer to increasingly expensive oil, energy dependence on foreign suppliers and global warming. Now, with the big push to renewable energy and far less reliance on fossil fuels, a market is starting to develop in the United States for more advanced batteries. This, combined with loan guarantees, will act as an incentive that could very well jumpstart the advanced battery industry in the US.

<http://arstechnica.com/science/news/2009/03/obama-commits-to-plugin-hybrids-battery-manufacturing.ars>

Lithium-ion batteries are already used in nearly every type of portable electronic device and are already in proto types destined for production electric vehicles, such as the Tesla S. Other uses for lithium compounds include: aerospace alloys, ceramics, glass, lubricants, refrigeration, pharmaceuticals, greases, silver solder, textiles, propellants and in the production of synthetic rubber.

In 2006, according to the USGS, the United States was the leading consumer of lithium minerals and compounds and the leading producer of value-added lithium materials.

- According to the USGS, overall demand for lithium is growing at a rate of 4-5% per year
- Demand for lithium destined for battery usage is predicted to grow by 20% per year
- Over 60% of mobile phones and 90% of laptop computers feature Lithium Ion batteries
- The worldwide market for rechargeable lithium batteries is estimated to be worth over \$4 billion/year
- The automotive market alone is projected to reach \$337 million in 2012, and \$1.6 billion in 2015

If the promise by President Obama that one million American made hybrid vehicles will be on American roads by 2015 is to be met then there is no substitute for lithium based battery technology at this stage of the energy revolution.

"Lithium ion batteries are anticipated to replace gasoline as the principal source of energy in future cars and military vehicles." The National Alliance for Advanced Transportation Battery Cell Manufacture

Other Auto Industry Facts include:

- GM announced it would build a plant to manufacture lithium-ion (Li-ion) batteries for the Chevy Volt scheduled to debut in 2011.
- BMW plans to launch its remodeled Li-ion battery-powered 750i luxury sedan to the Japanese in 2010. This year, the company is producing 500 all-electric MINI Es, also with Li-ion batteries, for leasing in select cities.
- Toyota hopes to launch plug-in hybrid Priuses with Li-ion batteries later this year.
- Mercedes-Benz anticipates launching its S400 Blue HYBRID with a Li-ion battery next year.
- The Ford Escape plug-in hybrid with the same power technology is slated for 2012.
- Also the Tesla Roadster, Chrysler EcoVoyager, Dodge ZEO, Jeep Renegade and the Saturn Flextreme are all slated for li-ion batteries.
- Nissan will use Li-ion batteries for the 65,000 hybrids they hope to manufacture by 2010.
- Mitsubishi Motors Corp. anticipates that demand will increase fivefold to meet the needs of electric vehicles.

If the US does not develop a lithium-ion battery manufacturing sector at home it may very well be shut out of the electric car business – he who makes the batteries will also make the cars.

Lithium demand will skyrocket as more and more hybrids roll down the assembly line. Current processing potential is limited, making it vulnerable to market disruption. And

limited supplies could mean big profits for lithium miners and processors.

It's extremely hard to believe that any politician or lobbyist would consider sourcing the needed supplies for Obama's Energy Revolution from offshore suppliers and risk the same foreign dependence as they have today with oil. Politicians will fight tooth and nail to avoid importing lithium or lithium-ion batteries.

So where will America's much needed lithium come from?

### **Clayton Valley – The US Saudi Arabia of Lithium**

Clayton Valley is located in the center of Esmeralda County Nevada approximately 70k west of Goldfield and approximately 88k southwest of Tonopah the closest support center. Access to the valley is by paved road.

The valley is a broad open playa surrounded by rolling to rugged hills and ranges. Temperatures range from 35 degrees (95f) in August to average lows of -8 (17.5f) in December. Precipitation average is 11.2cm with 6.9cm of snowfall. Annual evaporation exceeds 127cm.

Clayton Valley contains the only operating lithium mine in the US and the only lithium brine operation in the US.

Lithium rich brines and evaporities have been accumulating in the Clayton Valley for at least 33,000 years. These brines have the highest lithium content of any brines tested by the USGS in the southwestern US.

Some of the volcanics to the east of Clayton Valley contain significantly higher levels of lithium than normal (Replenishment of brines comes from surrounding Rhyolite, which are the most lithium rich in the world. Brines in the area have concentrations as high as 1000 ppm.) and it is

believed that as they weathered they provided the lithium in ground water that moved down to the low point in the system (and continues to do so recharging the brines) which is Clayton Valley. Other lithium sources such as area hot springs and other volcanics may also contribute.

Lithium exists in Clayton Valley in two modes: in solution within a brine and multiple solid phases such as hectorite (a clay mineral) and halite (evaporite salts). The brine is what has been mined in the valley since 1967 but solid phases are also important because these formations were critical to the development of the brines currently being mined. The lithium in solid phases is also important because it might be economically recovered.

The economics of obtaining lithium carbonate from brine are so favorable that most hard rock production has been priced out of the market. Lithium brines are currently the only lithium source that can support mining without significant other credits from tantalum, niobium, tin etc., (low manganese content within Nevada's Clayton Valley brines significantly reduces recovery costs, unlike Chile's high manganese content brine deposits). Lithium brine resources are now the preferred method of lithium recovery.

Nevada brines are pumped from the ground and progress through a series of evaporation ponds. Over the course of 12 to 18 months, concentration of the brine increases to 6,000 parts per million (ppm) lithium through solar evaporation. When the lithium chloride reaches optimum concentration, the liquid is pumped to a recovery plant and treated with soda ash, precipitating lithium carbonate. The carbonate is then removed through filtration, dried, and shipped.

Lithium is usually distributed in a chemical form such as lithium carbonate ( $\text{Li}_2\text{CO}_3$ ) and production figures are often quoted in lithium carbonate equivalent quantities. By weight approximately 18.8% of lithium carbonate is lithium.

Therefore 1kg of lithium is the equivalent of 5.3 kg of lithium carbonate.

The lowest cost lithium producers will be tomorrow's major lithium producers. US based lithium producers and US based lithium product manufacturers will have a huge advantage over their competition in other countries because of Obama's Clean Green Energy Revolution. The stimulus package and the desire to have independence from foreign supplied energy makes it a foregone conclusion.

### **Rodinia Minerals RM.tsx-v**

Estimates of the lithium endowment of Clayton Valley suggest that 2 – 22 million tones of lithium were liberated into the water system of Clayton Valley. Only a fraction of this is currently accounted for in the total production and resources at the Silver Peak Lithium Operations mine.

Rodinia Minerals RM.tsx-v, [www.rodiniaminerals.com](http://www.rodiniaminerals.com) is trying to quickly position itself as a Clayton Valley Nevada based lithium brine miner to support the growing demand for lithium based battery production in the USA.

Rodinia's +50,000 acres of 100% owned claims are close to major support centers and a local trained workforce. Work can be carried out all year round. Nevada has a long mining history.

The exploration of Clayton Valley will be made much easier by the fact that the sources, transportation and the traps where the brine collects are all near the surface.

This rarely happens and gives Rodinia a very strong exploration advantage that significantly sets them apart from most mineral deposits and exploration models.

\*\*\*\*\*

If you're interested in the junior resource market and would like to learn more please come and visit us at.

<http://www.aheadoftheherd.com/>

Richard (Rick) Mills

[www.aheadoftheherd.com](http://www.aheadoftheherd.com)

[rick@aheadoftheherd.com](mailto:rick@aheadoftheherd.com)

[Archives](#)

Bio – Richard is host of [www.aheadoftheherd.com](http://www.aheadoftheherd.com) and invests in the junior resource sector. His articles have been published on over 30 websites including - Wall Street Journal, Kitco, USAToday, Safehaven, SeekingAlpha, The Gold/Energy Reports, Gold-Eagle and Financial Sense.

\*\*\*\*\*

Legal Notice / Disclaimer

This document is not and should not be construed as an offer to sell or the solicitation of an offer to purchase or subscribe for any investment. Richard Mills has based this document on information obtained from sources he believes to be reliable but which has not been independently verified; Richard Mills makes no guarantee, representation or warranty and accepts no responsibility or liability as to its accuracy or completeness. Expressions of opinion are those of Richard Mills only and are subject to change without notice. Richard Mills assumes no warranty, liability or guarantee for the current relevance, correctness or completeness of any information provided within this Report and will not be held liable for the consequence of reliance upon any opinion or statement contained herein or any omission. Furthermore, I, Richard Mills, assume no liability for any direct or indirect loss or damage or, in particular, for lost profit, which you may incur as a result of the use and existence of the information provided within this Report.

Richard Mills may from time to time, have long or short positions in, and buy and sell the securities or derivatives (including options) of companies mentioned in this article.

Rodinia Minerals RM.tsx-v is an advertiser on [www.aheadoftheherd.com](http://www.aheadoftheherd.com)