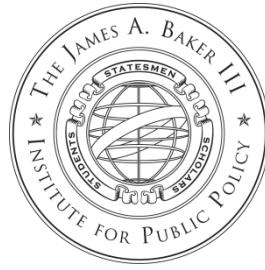


ENERGY MARKET CONSEQUENCES OF AN EMERGING U.S. CARBON MANAGEMENT POLICY

Lithium in Bolivia: Can Resource Nationalism Deliver for Bolivians and the World?

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JAMES A. BAKER III INSTITUTE FOR PUBLIC POLICY
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LITHIUM IN BOLIVIA:
CAN RESOURCE NATIONALISM DELIVER
FOR BOLIVIANS AND THE WORLD?

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ENERGY MARKET CONSEQUENCES OF AN EMERGING
U.S. CARBON MANAGEMENT POLICY

Emerging energy and climate policies in the United States are accelerating the pace of technological changes and prompting calls for alternative energy and stricter energy efficiency measures. These trends raise questions about the future demand for fossil fuels, such that some energy-producing nations are reluctant to invest heavily in the expansion of production capacity. The abundance of shale gas resources in North America could allow the United States to utilize more gas in its energy mix as a means of enhancing energy security and reducing CO₂ emissions. However, this will only occur if U.S. policies promote and allow the benefits provided by natural gas to be realized. To examine these issues and changing trends in the U.S. energy and climate policy, the Baker Institute organized a major study investigating the North American and global oil and natural gas market consequences of emerging U.S. policies to regulate greenhouse gas emissions, as well as the potential role of alternative energy in the U.S. economy.

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Introduction¹

The market for lithium has significant potential but is uncertain. Between 2000 and 2008, worldwide demand for lithium grew annually by 6 percent, and demand for lithium in battery applications grew by 22.1 percent per year.² At the end of 2008, Bolivia appeared to have a privileged place in the evolving lithium market, and was labeled by many as the “Saudi Arabia of lithium.” The ability of electric vehicles (EV) to contribute to a significant reduction in carbon emissions was assumed to depend upon Bolivian lithium supplies reaching the market.³ The Bolivian government responded as if it had significant market power, insisting on non-negotiable terms that would give it the bulk of the rents associated with not only lithium extraction, but also its transformation into lithium carbonate and battery production. In moments of great fantasy, the government even talked of complete dominance over the production chain by fabricating EVs itself in Bolivia.

Bolivia has little impact on the demand for lithium. However, the demand side of the picture is less important to this discussion than the supply side because if demand doesn't rise dramatically, Bolivia can't exercise any potential market power on the supply side. Moreover, the supply picture is quite complex, not only globally, but specifically in Bolivia. There are multiple issues that have to be resolved before Bolivian production, still 10 to 15 years down the road by some estimates, could enter the market, particularly given the quality of Bolivian lithium, the country's lack of infrastructure, and an unstable political environment, even within the forces supporting Bolivian president Evo Morales.

Is Bolivia too significant a source to be left out of the market, no matter how ineffective, unstable, and risky its lithium policy? Will the mining companies, automobile companies, and governments see enough potential in Bolivia to invest even as they expand other lithium investments in Chile, Argentina, and elsewhere? The answer will develop as Bolivians and

¹ I benefited greatly from conversations with Roger Tissot and research support from James Coan, Sam Hile and Kevin Liu. All responsibility for views presented herein is mine alone.

² Roskill Information Services, *The Economics of Lithium*, Eleventh Edition, 2009.

³ cf., Damian Kahya, “Bolivia holds key to electric car future,” *BBC News*, November 9, 2008, <http://news.bbc.co.uk/go/pr/fr/-/2/hi/business/7707847.stm>; Simon Romero, “Bolivia: The Saudi Arabia of Lithium?” *The New York Times*, February 2, 2009; Michael Smith and Matthew Craze, “Lithium for 4.8 Billion Electric Cars Lets Bolivia Upset Market,” *Bloomberg News*, December 7, 2009, <http://www.bloomberg.com/apps/news?pid=20601109&sid=aVqbD6T3XJeM>.

investors interact to accommodate the widespread resource nationalist views that dominate political discourse in Bolivia. A critical factor in the global market is that—unlike oil and gas markets—lithium is not consumed as it works in batteries, which means consumers aren't regularly filling up on lithium and recycling will inevitably be a major source of lithium.

Many analysts see Bolivia's lithium politics as typical resource nationalism at work. The core idea behind a resource nationalism perspective is that the natural resources in the ground or under the sea are a "national patrimony" and, consequently, should be used for the benefit of the nation rather than for private gain. In addition, the commodity itself has an intrinsic value, not one determined by the market, and this value belongs to the nation.⁴

But resource nationalist policies vary significantly, as evidenced by Brazil's experience with opening its national oil company (NOC), Petrobras, to private investment and its oil blocs to competition since the mid-1990s and by Mexico's insistence on a monopoly for its NOC, Pemex. Understanding Bolivia's lithium policy and its likely evolution as the market develops thus requires that we look to the political economy of resource nationalism in Bolivia.

The first part of this paper focuses on the global supply side of the emerging market for lithium, highlighting uncertainties but concluding that Bolivia will not dominate the market. The second part examines the specific issues involved in exploiting Bolivian lithium, even under favorable public policy. The third part explains why Bolivia has embarked on a set of policies to develop its lithium that is likely to keep Bolivia's potential from being met. The conclusion suggests that a strong but not exponential increase in demand will keep Bolivia out of the market if it insists on its preferred policy, and that even a significant increase in demand is likely to provide Bolivia with only a small window in which it would be a major player. It also indicates what needs to change in the country's political economy for Bolivia to adopt a sustainable policy that permits lithium production to benefit both Bolivians and the world market.

⁴ For an elaboration, see David R. Mares, "Resource Nationalism and Energy Security in Latin America: Implications for Global Oil Supplies" (working paper, James A. Baker III Institute for Public Policy, January 2010).

The Supply Situation and Bolivia

Currently, global reserves of lithium that are commercially viable are at 9.9 million tons (mt), with Chile holding 76 percent (7.5 mt) of that total.⁵ Chile is the number one producer in the world (10,600 tons in 2008), followed by Australia (6,280 tons), China (3,290 tons), and Argentina (3,170 tons); 2009 production fell significantly because the global recession reduced demand. Between 2005 and 2008, the United States imported 63 percent of its lithium from Chile and 35 percent from Argentina. Bolivia, on the other hand, has not yet begun commercial production, so the cost of its production is unknown and, as we shall see below, not foreseeable at this stage. The supply side, however, is evolving rapidly, with new discoveries, increased efficiency in production, and technological innovation in recovery techniques. No cartel of suppliers has emerged that would strategically limit output or try to keep prices above market levels.

The commercially viable resources could grow if prices for lithium increase. Lithium is present not only in continental brines (the chief source today and the type in Bolivian salt lakes, or *salars*) but also in geothermal brines, minerals, and clays; if the price of lithium carbonate rises significantly, these other sources will become commercially viable—even seawater can yield lithium, though at five times the current price of extracting lithium from brines. Already, for example, South Korea is investing in technology to make extraction of lithium from seawater commercially viable by 2015.⁶

In January 2009, Bolivia's 5.4 mt were considered to be a large percentage of the roughly 14 mt of world resources, 760,000 tons of which were in the United States. (World resources include deposits that are not commercially viable with current technology.) As of January 2010, the U.S. Geological Survey (USGS) increased its resource estimate for Bolivia to 9 mt, but with other countries' resources also revised upward to a total of 25.5 mt, Bolivia now has 36 percent (9 mt) of world resources, Chile 30 percent (in excess of 7.5 mt), and Argentina and China each has 10

⁵ The subsequent data is taken from the 2009 and 2010 USGS "Lithium" reports in the annual Mineral Commodity Surveys, available at <http://minerals.usgs.gov/minerals/pubs/commodity/lithium/mcs-2010-lithi.pdf> and <http://minerals.usgs.gov/minerals/pubs/commodity/lithium/mcs-2009-lithi.pdf>. All values are in metric tons.

⁶ Christian Oliver, Jonathan Soble and Kathrin Hille, "Scramble for Lithium Gathers Pace," *Financial Times*, March 8, 2010.

percent (2.5 mt each). The United States has 2.5 mt, according to the January 2010 estimate. China has since revised its figures up to 3.35 mt.⁷

Before the USGS's most recent upward revision, lithium reserve estimates had been quite stable. In 1996, for instance, world resources outside the United States were estimated at 12 mt—compared with “more than 13 million tons” in 2009—and the United States had the same 760,000 tons the USGS would estimate 13 years later.⁸ Commercially viable reserves had roughly doubled by 2009, however, from 2.2 to 4.1 mt, primarily because of a substantial increase in Chilean reserves.

Other sources have different estimates, with industrial mineral expert R. Keith Evans placing world resources at 29.8 mt in 2008.⁹ Roskill Information Services estimates worldwide resources of up to 30 mt.¹⁰ Finally, an industry group (International Lithium Alliance, or ILA) came up with its own estimates of lithium deposits that suggest 38.5 mt, or 50 percent higher than USGS (see Figure 1, which is in kilotons).

⁷ Bill Chameides, “Does the United States Need Bolivia’s Lithium?” posted on Duke University website, February 19, 2009, <http://nicholas.duke.edu/thegreengrok/lithium>.

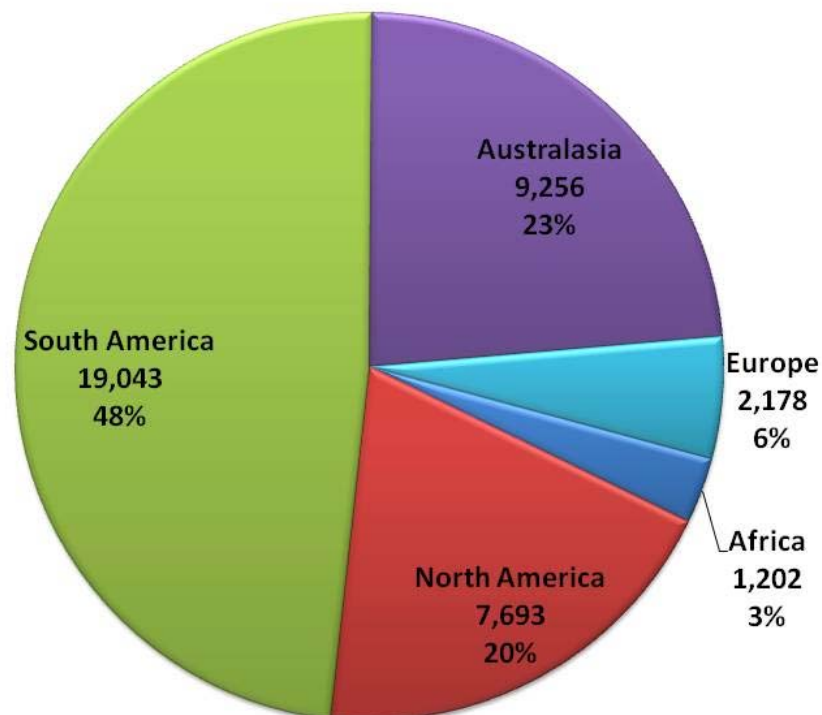
⁸ “Lithium,” *Mineral Commodity Summary: Lithium*. United States Geological Service. <http://minerals.usgs.gov/minerals/pubs/mcs/1996/lithium.txt>

⁹ R. Keith Evans, “An Abundance of Lithium – Part Two,” July 2008, http://www.evworld.com/library/KEvans_LithiumAbunance_pt2.pdf p. 7 accessed April 6, 2010

¹⁰ Roskill 2009.

Figure 1: Global Distribution of Lithium Resources

WORLD BROAD BASE LITHIUM RESERVES



Kilotonnes Lithium

Source: International Lithium Alliance¹¹

However, even ILA's figure will be revised upward shortly. Its figures for South America still have Bolivia at 5.4 mt,¹² rather than the more than 10 mt that the Bolivian government recently announced or the 9 mt that the USGS accepts. Mexico had no known lithium deposits, but in October 2009 a large deposit that could yield over 800,000 tons of lithium was announced by the Piero Sutti company. The company already possesses the concession on mining the deposit¹³ and China's state-owned financial conglomerate, Citic Group, has discussed investing in the

¹¹ Gerry M. Clarke and Peter W. Harben, "Broad Based Lithium Reserves," June 2009, <http://www.lithiumalliance.org/about-lithium/lithium-sources/85-broad-based-lithium-reserves>.

¹² International Lithium Alliance, "Broad based Lithium Reserves – South America," <http://www.lithiumalliance.org/about-lithium/lithium-sources/85-broad-based-lithium-reserves?start=1>.

¹³ *Latin American Herald Tribune*, "Huge Lithium, Potash Deposit Found in Mexico," October 9, 2009.

project.¹⁴ Piero Sutti's pilot plant capacity of 10,000 to 12,000 tons of lithium a year is larger than that of Bolivia's pilot project.¹⁵ In addition, Mexico has geothermal brines, which are a by-product of geothermal power generation—and thus do not require additional investments and risks associated with exploration and drilling.¹⁶ Other places are being investigated for their potential from lithium brines, including the Salton Sea geothermal field in Southern California.¹⁷

Also worthy of note is the June 2010 Pentagon announcement that Afghanistan may have \$1 trillion in mineral deposits, which was later revised by the Afghan Ministry of Mines to a maximum of \$3 trillion. While the initial announcement cited an internal Pentagon memo speculating that Afghanistan could become the “Saudi Arabia of lithium,” the USGS has never generated a lithium figure for Afghanistan.¹⁸ In addition, the data is said to have been primarily gathered during the 1980s Soviet occupation.¹⁹ When questioned at a June 14, 2010, Department of Defense press conference, USGS geologist Jack Medlin said that “there has been no assessment of the lithium resource, but we know that, basically, lithium does occur in a number of those old dry lake beds.”²⁰ Despite the lack of substantive evidence regarding Afghanistan's deposits, further investigation could ultimately end up significantly altering the world resource estimates discussed above. These potential additions to world resource estimates may not be commercially viable, though, because of the weakness and uncertainty of the investment climate and regulatory regime in Afghanistan.

Bolivians and the world are concerned about Bolivia's lithium deposits because of their potential impact on the availability of lithium for future electric vehicles. However, analysis of the new plug-in hybrid Chevy Volt battery suggests lithium resources will not be particularly constrained, even without Bolivia. Although the Volt's battery weighs 400 pounds, it only contains four

¹⁴ “China's Citic in Talks to Develop Zacatecas Lithium Deposit,” *Business News Americas*, March 24, 2010, http://www.bnamericas.com/news/mining/China*s_Citic_in_talks_to_develop_Zacatecas_lithium_deposit

¹⁵ Megan McAdams, “A Grey Goldmine: Recent Developments in Lithium Extraction in Bolivia and Alternative Energy Projects,” Council On Hemispheric Affairs, November 17, 2009.

¹⁶ “Pan American Lithium Corp.'s Mining Projects in Chile and Mexico Provide Investors an Opportunity to Participate in Growing Demand for Lithium,” *Mining Investment Trends*, March 31, 2010.

¹⁷ Roskill, 2009.

¹⁸ James Risen, “U.S. Identifies Vast Mineral Riches in Afghanistan,” *New York Times*, June 13, 2010.

¹⁹ Jeremy Page, “Taleban Zone's Mineral Riches May Rival Saudi Arabia, Says Pentagon,” *The Sunday Times*, June 15, 2010, http://business.timesonline.co.uk/tol/business/industry_sectors/natural_resources/article7149696.ece.

²⁰ Michael Reilly, “Why Lithium Can't Save Afghanistan,” *Discovery News*, June 15, 2010, <http://news.discovery.com/earth/why-lithium-cant-save-afghanistan.html>.

pounds of lithium.²¹ With current reserve estimates of 9.9 mt, this is enough lithium for over 5.4 billion Chevy Volts, which dwarfs the roughly 800-850 million vehicles worldwide currently on the road and even the prospects for two billion vehicles in a few decades.²² A pure EV would require more lithium, but current reserve estimates would be sufficient for at least one billion vehicles. Other uses for lithium are unlikely to strain supplies; at current production rates of 25,400 tons in 2008 and 18,000 tons in 2009, the reserves would last for 390 and 550 years, respectively.²³

According to Roskill estimates, demand for lithium not intended for batteries increased 4 percent per year from 2000 to 2008, a healthy rate, but nothing like the 22 percent per year increase in lithium use for batteries.²⁴ Battery demand accounted for nearly 20 percent of overall lithium demand in 2008, up from about 6 percent in 2000. The largest end-use of lithium is still for ceramics and glass, and demand for lithium for this sector increased by 2.8 percent per year.

Constraints could also affect the price of lithium-ion batteries for future electric vehicles, but lithium prices in 2008 were only about \$13/pound, accounting for a tiny fraction (~\$50) of the cost of the electric vehicle battery, which can be \$10,000 or more.²⁵ Besides, even if the price of lithium does increase substantially, it would only affect new vehicles, not existing owners who drop out of the market until they purchase another vehicle. In this way, an increase in the price of lithium would be much like the increase in steel prices in the 2000s, potentially affecting vehicle sales and manufacturer profit margins but not resulting in noticeable public anger or geopolitical crises.²⁶

Additionally, future new lithium demand for electric vehicles may be lower than what is needed for a car like the Chevy Volt. Ultracapacitors could increase by 40 percent the efficiency of “microhybrid” vehicles (gas-powered with small electric motors) equipped with Li-ion batteries

²¹ Don Sherman, “When Electric-Car Batteries Die, Where Will They End Up?” *New York Times*, June 10, 2010.

²² Daniel Sperling and Deborah Gordon, *Two Billion Cars* (Oxford: Oxford UP, 2009).

²³ USGS “Lithium,” 2010.

²⁴ Roskill, 2009.

²⁵ Ibid.

²⁶ Stephen Cooney, “Steel: Price and Policy Issues,” *CRS Report for Congress*, August 31, 2006.

<http://www.fas.org/sgp/crs/misc/RL32333.pdf>.

when driven in the city, or be paired with existing lithium-ion batteries for further efficiency gains, thereby reducing total demand for the size and number of these batteries.²⁷ Other vehicle technologies may be employed, such as more efficient internal combustion engines, natural gas in vehicles, and batteries with different chemistries that do not require lithium. These advancements would all reduce the total demand for lithium.

Finally, unlike gasoline, lithium does not get completely consumed over the life of the battery, and the battery market likely will be able to recycle the lithium once the battery dies. Much of the lithium likely could be recovered, although getting every last bit might require some additional processing because some remains in the anode, the source of electrons in a battery.²⁸

At this point, the lithium recycling infrastructure is still five to 10 years away from being widely available on a commercial scale. The only company that currently offers large-scale lithium recycling is Toxco, which received a \$9.5 million grant from the U.S. Department of Energy in 2009 to increase lithium recycling capabilities.²⁹ Since it is still more economically feasible to mine for new lithium as opposed to recycling it, current recycling plants are focused on processing nickel metal hydride batteries while possessing the potential to transition into processing lithium in the future. In the long-term, given a rapid market penetration scenario with no reuse of batteries for utility applications, federally-funded Argonne National Laboratories estimates that new lithium material needed for the U.S. market will peak around 2030, and by about 2040, more lithium will be available for recycling than new material will be mined.³⁰

With sufficient and growing supply, manageable demand that may shrink on a per-battery basis in the future, and the likelihood of future lithium recycling, developments point dramatically away from the near-monopoly power popularly hypothesized for Bolivia.

²⁷ Kevin Bullis, "Ultracaps Could Boost Hybrid Efficiency," *Technology Review*, August 20, 2009, <http://www.technologyreview.com/energy/23289/page1/>.

²⁸ Linda Gaines, e-mail correspondence with James Coan, August 2010.

²⁹ Shelley DuBois, "Don't Believe a Word About Electric Cars and the Coming Lithium Shortage," *Fortune*, July 13, 2010, http://money.cnn.com/2010/07/12/news/companies/electric_vehicle_lithium_shortage.fortune/index.htm.

³⁰ Linda Gaines and Paul Nelson, "Lithium-Ion Batteries: Possible Materials Issues," Argonne National Laboratory, <http://www.transportation.anl.gov/pdfs/B/583.PDF>; Gaines e-mail message.

Bolivia's Lithium Resources

In this section we examine Bolivia's lithium resources, paying particular attention to the natural and economic challenges that will need to be overcome to get significant Bolivian supplies to the market for batteries. Quantity is not an issue—everyone is convinced that Bolivia has a great deal of lithium; the questions revolve around its quality, the technological and investment issues associated with its exploitation, and environmental issues.

Quality of the Uyuni Site

Although Bolivia has approximately twenty *salar*s for lithium exploitation, the Uyuni site is by far the largest and where the government and private industry have focused most of their initial efforts. The quality of Bolivian lithium deposits is a key concern because it affects the cost of extracting the lithium from the brine and processing it into lithium carbonate. The brine under the *salar* has low concentrations of lithium, thereby requiring more drilling and channeling to accumulate the lithium in quantities desired. Uyuni also has significantly high ratios of magnesium to lithium (compare 18.6:1 to Chile's Salar de Atacama at 6.5:1 or the Argentine Salar del Hombre Muerto at 1.5:1), requiring more expensive extraction and processing to generate lithium carbonate.³¹ Seasonal flooding of the salt flats slows the evaporative process in the pools relative to the evaporation rate at competing sites (40 percent of the rate at Atacama) and thus contributes to higher costs.³²

The quality of the site is also affected by infrastructure issues. Uyuni, at 12,000 feet above sea level, is a region largely forgotten by previous governments. There are a few secondary roads and an old rail line, both of which wash out in periodic flooding. Virtually everything will have to be built from scratch and skilled personnel will need to be recruited from outside the area. The government intends to build a pipeline capable of delivering a total of 170 cubic meters of natural gas per day to four or five plants to process the many minerals besides lithium that are

³¹ "Orocobre – The Next Low Cost Lithium Producer," Orocobre Limited, March 25, 2010, <http://media.wotnews.com.au/asxann/01049957.pdf>.

³² McAdams, 2009; April Howard, "The Battle Over Bolivia's Lithium and the Future of Energy," May 6, 2009, <http://towardfreedom.com/home/content/view/1582/1/>.

found in the brines.³³ The roads will require significant improvement to transport inputs and products efficiently; the power grid will need to be significantly upgraded. Improving and developing all the necessary infrastructure in a remote corner of landlocked Bolivia will certainly take years.

Technology and Investment Issues

Bolivia has no local lithium extraction and processing industry, thus it will either need to partner with others or develop indigenous technology. As others have noted, “the presence of magnesium in the brine complicates the refining process,”³⁴ meaning that existing technology is not adequate. The government has invited Japan Oil, Gas & Metals Corp., Mitsubishi, and Sumitomo from Japan; LG Chem Ltd. and Korea Resources Corp. from Korea; Brazil’s Ministry of Science and Technology; and France’s Eramet SA and Bollore to demonstrate their good faith up front by advising Bolivian projects developing the ability to extract and process the lithium. The Bolivians are supported by researchers from Brazilian and South Korean universities.³⁵

The initial fruit of Bolivia’s strategy was an international seminar on lithium production in La Paz in October 2009 at which the first Bolivian-produced lithium chloride salts were showcased.³⁶ The Bolivian national mining company COMIBOL claims that the country’s scientists have developed a formula for producing high-quality lithium carbonate,³⁷ but no one else has confirmed that claim.

Investment will be required not just for production, but for site improvement and mitigation of environmental impacts. The Bolivian government has announced that it will budget US\$500 million for roads, a natural gas pipeline, a power grid, and a water system. Although the government expects to finish construction on a time schedule that will permit the plants to

³³ “New Higher Lithium Reserves Estimate,” *Bolivia Weekly*, January 28, 2010, <http://www.boliviaweekly.com/new-higher-lithium-reserves-estimate/239/>.

³⁴ Howard, 2009.

³⁵ Smith and Craze, 2009.

³⁶ *Bolivia Information Forum*, November 27, 2009, www.boliviainfoforum.org.uk.

³⁷ McAdams, 2009.

operate once they are ready, delays could be significant, particularly if opposition to the government or dissatisfied workers shut down construction sites³⁸ (see discussion below).

Where will Bolivia get the necessary investment funds? The Morales government assumes that if foreign investors won't come in on Bolivian terms, Bolivia itself can finance the creation of a transportation infrastructure, the exploration and production of lithium mining, the industrial process of creating lithium carbonate, and the development of battery production. But the government is already committed to a US\$1 billion investment plan in hydrocarbons to pick up the slack caused by natural gas policies that are seen as unfriendly to private investment. The suspension of Bolivian participation in the Andean Trade Promotion and Drug Eradication Act program in September 2008, which gives preferences to the U.S. market, produced a loss of 9,000 jobs through 2009 in an economy that has difficulty creating jobs and led to a doubling of government aid to exports from the manufacturing sector (from \$8 to \$16 million).³⁹

The Japanese government has gotten involved in the global search for lithium, reportedly upping the ante by offering not just scientific cooperation to build lithium-related businesses in Bolivia, but also hundreds of millions of dollars in loans or grants to co-finance a 100 megawatt (MW) geothermal power plant, the installation of solar panels in hospitals in La Paz, and to promote the alpaca wool textile business and terrestrial digital televisions.⁴⁰

Environmental Issues

The environmental impact on the Salar de Uyuni, the world's largest salt flat and an area that has not previously been mined, is likely to be a major issue. It isn't just the mining that will attract attention. If the regional elites are successful in their demand that the government implement its lithium strategy on site (see below), the extensive use of water and the construction of highly toxic processing plants and battery factories will be highly problematic.

³⁸ Ibid.

³⁹ Economist Intelligence Unit (EIU), *Country Report: Bolivia* December 2009. pp. 7-8; "Bolivia Denuncia a EEUU por ATPDEA" March 25, 2010, <http://eju.tv/2010/03/bolivia-denuncia-a-eeuu-por-atpdea/#ixzz0xqInCfvD>

⁴⁰ Edmunds.com Green Car Advisor, "Japanese Government Mulls Aid to Bolivia to Secure Supply of Lithium for Batteries," April 5, 2010, citing the Japanese newspaper *Nikkei*. <http://blog.dealerdex.com/japanese-government-mulls-aid-to-bolivia-to-secure-supply-of-lithium-for-batteries/>.

Water is already scarce in the area. Local peasants and environmental activists stopped a project to send 6,000 liters of water per second to Chile, but nearby mines—including one of the world's largest, the Sumitomo-owned silver and zinc mine San Cristobal—use enough water to have depleted some watersheds.⁴¹ The government has developed pipelines to feed the lithium pilot plant at Uyuni and provide water to subsistence farms en route;⁴² Sumitomo has also invested in local water distribution systems.⁴³ But if the ground water becomes polluted from chemicals leaking from the evaporation ponds or the processing plant, as is occurring in Chile's lithium mining areas, the farmers will be hurt. The Bolivian Environmental Defense League (FOBOMADE) and the Liga de Defensa del Medio Ambiente, which promotes sustainable development in Bolivia, are concerned that environmental impact studies are lacking or inadequate. The fact that the government is claiming that it will simply extract the lithium from the brine and “put(ting) everything else back in” indicates either their naiveté or their lack of concern.⁴⁴

The extensive nature of the deposits will mean more drilling or excavating of channels, while the lower evaporation rates will mean more pools across the salt flats. The mining and industrial footprint will likely negatively affect the tourism industry which transports, accommodates, feeds, and guides 60,000 people a year in the region.⁴⁵

These environmental issues will likely have economic and health consequences, both of which could affect the profitability of the operations. Environmental issues are political issues as well. A new metallurgical plant in Pacajes, La Paz province is encountering serious protests from the highland indigenous organization Consejo Nacional de Ayllus y Markas del Qollasuyo (CONAMAQ) based on the fact that the government rushed through the permit and did not

⁴¹ Howard, 2009; Eduardo Garcia and Diego Ore, “Protest Against Sumitomo Bolivia Mine Worsening,” *Reuters*, April 16, 2010.

⁴² Tim Elfrink, “Lithium from Bolivia Could Reshape Miami and the World,” *Miami New Times*, January 28, 2010, <http://www.miaminewtimes.com/2010-01-28/news/lithium-from-bolivia-could-reshape-miami-and-the-world/5>.

⁴³ Sumitomo Corporation, “Social Contribution Activities Promoted in the Wilderness of Bolivia - San Cristobal Mine,” http://www.sumitomocorp.co.jp/english/topics/2009/20090811_185245.html.

⁴⁴ Howard, 2009; Minería de Bolivia, COMIBOL Debe Normalizar Licencias de Operación,” December 26, 2009, http://boliviaminera.blogspot.com/2009_12_01_archive.html.

⁴⁵ Dan McDougall, “In Search of Lithium: The Battle for the 3rd Element,” *Daily Mail*, April 5, 2009, <http://www.dailymail.co.uk/home/moslive/article-1166387/In-search-Lithium-The-battle-3rd-element.html#ixzz0kRSdDko2>.

consider their complaints. CONAMAQ has threatened to take direct action, which could interfere with operations.⁴⁶

Rent Distribution Issues, Including Value-added Production

Rent distribution is the key issue for lithium production in Brazil. Costs and risks can be accommodated via the distribution of rents. But the Morales government and the Bolivian people who have elected him president twice by historically high margins have insisted that the bulk of the rents must go to Bolivia. We can see this sentiment expressed by the president, who has said “The state doesn't see ever losing sovereignty over the lithium. Whoever wants to invest in it should be assured that the state must have control of 60% of the earnings.” Those at the bottom of the social scale agree. In a 2008 interview, Alfredo, an old miner in the Uyuni area, said, “We don't want to see foreign companies here ... It would be very bad, as the government says.”⁴⁷

Whether the companies believed Morales was bluffing, or they were still uncertain about ever getting Bolivian lithium to market, the result is that after months of communicating back and forth, the government was convinced the firms would not offer the investment and technology to produce batteries in Bolivia. Consequently, the government announced that it would develop the mining and processing of lithium itself; it was at least implied that if a company wanted to purchase Bolivian-produced lithium carbonate in the future, they needed to cooperate now with the country's plans. Companies have also been told that Bolivia will be producing lithium batteries by 2018 and the government is encouraging foreigners to participate in this sector of the Bolivian lithium industry. At the extremes, the Bolivian government mentions the production of electric vehicles as a goal.⁴⁸

To put these developments in context in order to assess their likely trajectory, it is helpful to examine what governments with nationalist and populist agendas have done in other South

⁴⁶ *Bolivia Information Forum*, November 17, 2009, www.boliviainfoforum.org.uk; Minería de Bolivia, “Corocoro Obtiene Licencia Ambiental en Tiempo Record,” December 26, 2009, http://boliviaminera.blogspot.com/2009_12_01_archive.html.

⁴⁷ Kahya, 2008.

⁴⁸ Eduardo Garcia, “Bolivia to Develop Uyuni Lithium Project Itself by 2014,” *Reuters*, November 1, 2009, <http://www.mineweb.com/mineweb/view/mineweb/en/page72102?oid=91722&sn=Detail>; McAdams, 2009.

American countries and what the Morales government has done on other issues that affect the foreign investment environment.

Ecuadorian governments, particularly the current populist regime of Rafael Correa, have ignored the role that the national oil company Petroecuador played in the environmental damage of the Amazon, and gone after the U.S. international oil company Chevron. Correa has also sent troops to occupy facilities built and managed by the Brazilian private firm Odebrecht⁴⁹ over a dispute regarding alleged construction defects. Venezuela's Hugo Chavez nationalized the Mexican private firm Cemex after it refused to pay a bill for \$1.3 billion in back taxes; he has also threatened the Brazilian Odebrecht with almost \$300 million in back taxes.

In the case of natural gas, Bolivia's chief export commodity, the Morales government has nationalized operations, turning the foreign companies (including Brazil's NOC, Petrobras) into service companies and increasing Bolivia's rent appropriation. Government mismanagement of domestic fuel distribution created shortages,⁵⁰ leading the gas-rich country to import liquefied petroleum gas (LPG) from Argentina and Peru.⁵¹ In the face of falling investment and mismanagement, rather than recognize these shortcomings and modify the terms demanded from the private sector, the Morales government has continually threatened to expel foreign investors who do not increase investment.⁵²

In summary, Bolivia's policy for developing its lithium potential is high-risk, and bets on scarcity and the country's continued dominance in resources even as market signals are suggesting a more prudent approach is merited. Domestically, Morales is overselling the benefits of lithium for Bolivia; battery-making is capital intensive, highly automated, produces few jobs, and requires nearly the same precision as the semiconductor industry. Clearly these characteristics are ill-matched for Bolivia's capabilities and needs. Also, auto manufacturers generally want batteries made near their assembly plants and with high quality control. Even if

⁴⁹ "South America – Conflict and Cooperation in South America," *Water Power & Dam Construction*, April 30, 2009.

⁵⁰ EIU 2009, p. 13.

⁵¹ "Bolivia to Import LPG from Peru," *Latin American Herald Tribune*, April 2, 2010, <http://www.laht.com/article.asp?ArticleId=354668&CategoryId=14919>.

⁵² "Evo Advierte: YPFB Puede Reemplazar a Inversionistas," *La Razón*, March 28, 2010.

Bolivia were to produce lithium batteries, it's unlikely that the jobs would be cost-effective in an economy with such high underemployment or that they could sell the batteries to anyone but a Bolivian in a captive market.

To understand why the Morales government has opted for this strategy, we need to understand the dynamics of resource nationalism in the Bolivian context.

The Political Economy of Lithium Policy

We've already noted Bolivia's challenges with geology (and geography), as well as with an international market that is quite speculative at this point, but not likely to be favorable to Bolivia if it develops on its current path. For the purposes of discussing the country's lithium policy, three historical facts from its macro-history are relevant. The country has been a major producer and exporter of natural resources (silver, gold, tin, oil, natural gas, and perhaps now lithium) since it was conquered by Europeans 500 years ago. Its population has remained largely indigenous, and the overwhelming majority of indigenous people are, and have always been, poor. Thus, the exporting of natural resources, despite its considerable revenue generation, has never benefitted the indigenous. Finally, whether in democratic or dictatorial times, until Evo Morales won election in 2005, the country had always been ruled by white and mestizo elites, not indigenous ones.

The context of natural resource policy in a specific country is set by geology, the international market, and the country's macro-history, but the specific details of policy are determined by characteristics of the political system and of the president. The system characteristics that matter for policymaking are the inclusiveness of the political system and the competitiveness of politics; the former tells us who will be involved in policymaking and whether we can expect adopted policy to be stable. The characteristics of the president that make a difference are his innovativeness and propensity to take risks.⁵³

⁵³ For an elaboration of the general argument see Mares, "Resource Nationalism and Energy Security."

In this section, I will explain how the political economy of natural resource policy plays out in the Bolivian context, and demonstrate why the country's current lithium development policy tilts so far toward the resource nationalism side. I will also show why the fact that the policy will fail to produce the expected benefits does not necessarily mean that it will change. The conclusion to the paper will elaborate on what needs to happen for Bolivia to adopt a lithium development policy that, by delivering for the world market, also delivers for Bolivians across social and ethnic strata.

Inclusiveness

The first key variable of natural resource policy is inclusion. Inclusion is defined in terms of who has the ability to influence the selection of a government and its policies. Groups that are included are “empowered”⁵⁴ within the system. Inclusion, therefore, is indicated by the provision of public goods that address that group's interests, as well as the provision of private goods to that group. Voting alone is insufficient to demonstrate inclusiveness. Potosi province voted for Morales in the presidential election and has a governor from the governing Movement Toward Socialism (MAS) party, yet perceived that its lithium bonanza was going to be siphoned off by an agency of the national mining company COIMBOL that responds to President Morales, not to people in Potosi. They also believed that their president was going to distribute those lithium-generated resources by a formula that, however “fair” from a national perspective, would leave the producing province with a smaller share of the resources than it wanted to address its needs. Hence, they threatened to take to the streets unless the Morales government lived up to its pledge to support communities. This is code for decentralizing central government functions where relevant and recognizing the priority of a community's call on resources located within its boundaries.

In contemporary Bolivia, the poor and the indigenous have been empowered and demand participation as independent actors and not just as symbolic beneficiaries. Riots in the streets have toppled presidents in 2003 (Gonzalo Sánchez de Lozada) and 2005 (Carlos Mesa). Yet the impact of rioters on the policy actually adopted after the overthrow depends upon their having

⁵⁴ See Angelo Bonfiglioli, *Empowering the Poor* (New York: United Nations Capital Development Fund, 2003), especially pages 41-58, <http://unpan1.un.org/intradoc/groups/public/documents/un/unpan010168.pdf>.

access to the institutions where policy is made. This is why Bolivians have remained ready to take to the streets—not because they want to overthrow Morales, but because they believe they have to remind him that they can in order to secure the policy decisions they want.

The Bolivian political system has become highly inclusive since Evo Morales' election in 2005; social movements, civic committees, unions, and business people all believe that the government will ultimately pay attention to the demands they articulate through the ballot box, street demonstrations, public meetings, and direct appeals to the president. Consequently, Bolivia's governing coalition is large, and this generates pressure for greater control of rents in order to have resources to reward the coalition's many members. There will, therefore, be a tendency for government to adopt natural resource policies with exceptionally high degrees of resource nationalism. Thus, as long as market conditions generate or, as is the case currently, promise to generate high rents, Bolivia's lithium policies will be stable. If rents fall or fail to materialize, resource nationalism will continue to dominate lithium policy, with the result that Bolivians will prefer to keep the resource in the ground rather than let foreigners "exploit" Bolivia once again.

Competitiveness

The second key variable for understanding natural resource policy addresses competition for control of the deliberative body that makes policy: does it alternate among rivals or remain under the control of a single constituency, that is, the groups and individuals who support the people in office? A constituency wants the people it supports in government to make public policy in their specific interest; if the country or future generations benefit along the way, fine, but people will want their needs taken care of first if they believe that they can influence the choice.

It shouldn't be a surprise, then, that in Bolivia the recently included poor and indigenous groups want private goods to be allocated in the name of justice and national development through abundant local benefits. After 500 years of non-indigenous control over their natural resources, the poor and indigenous continue to lack decent and stable employment, education, and health care because governments have historically emphasized providing private goods to the elites and middle classes and have invested little in public goods. It is hard for these newly empowered groups, therefore, to perceive their demands for private goods as unjust or problematic. When

these groups comprise significant numbers of the citizenry in a country with large reserves of natural resources and widespread poverty (60 percent of Bolivians live below the poverty line⁵⁵), it is difficult for leaders who hope to get elected or re-elected to argue that reforming public policy in a manner that is sustainable over the medium- to long-term is better than simply redistributing today's wealth. Those who wish to lead these newly included groups will find it necessary to emphasize their ability to provide private goods immediately and significantly (e.g., ordering an agency to install a health clinic in a district because of the way it voted rather than its assessed ranking in terms of health care needs). The conservative opposition in Bolivia refuses to recognize this fact. That is why they lose elections at the national level and dominate only in the recently settled (1950s) white and middle class provinces in the East, and not in the indigenous highlands in the West.

Even though all constituencies are self-centered, how is it that some governments manage to work with markets in ways that promote efficiency and effectiveness, while others largely promote the private gain of their constituencies? Political competition within the deliberative body that designs policy (e.g., the legislature in a democracy) is the key to getting politicians to view the delivery of public goods as furthering their career interests.⁵⁶ Competition is determined by whether control over the deliberative body and presidency shifts between rival political forces.

Competition for control of the deliberative body affects the private-public tradeoff in public policy in multiple ways, though it only reduces—rather than eliminates—private goods.⁵⁷ Since democratic governing coalitions consist of multiple partners, it is difficult to build one capable of winning at the national level and reward each partner solely with private goods; hence, the coalition will seek to generate public goods as well. In addition, when rival political groups are evenly balanced, they will have equal access to patronage. Distributing patronage in this

⁵⁵ CIA, *World Factbook*, www.cia.gov/library. Figures are for 2005 and 2006.

⁵⁶ Barry Ames, *Political Survival: Politicians and Public Policy in Latin America* (Berkeley: University of California Press, 1990); Barbara Geddes, *Politician's Dilemma: Building State Capacity in Latin America* (Berkeley: University of California Press, 1994); Pablo T. Spiller, Ernesto Stein and Mariano Tommas, *Political Institutions, Policymaking Processes, and Policy Outcome: An Intertemporal Transactions Framework* (Washington, DC: InterAmerican Development Bank, April 2003).

⁵⁷ Agricultural subsidies in the European Union and the United States demonstrate that democracies are not immune to providing private goods at public expense.

situation provides no relative advantage. The development of state capacity and the provision of public goods provide only a short-term advantage with the voters.

Competition also diminishes the cost of losing an election. Because no coalition can be sure of winning the next time, chances are that the winning coalition today will not use its position to institutionalize increased patronage to the party in power; without dominating patronage distribution, the winning coalition will find it difficult to break the competitive cycle.

Finally, competitive political systems are more likely to develop independent legal systems to protect what is broadly known as property rights—which include not only physical property, but contractual obligations and civil rights. Since everyone knows that, at some point, their group will not be running the government, they will want protection in those times when others are in office and thus will seek to institutionalize the rule of law.

With reference to natural resource policy, once politicians decide that satisfying their constituencies requires use of natural resource rents for the production of public goods, they need to build the state capacity to generate, capture, and use those rents. With regard to Bolivia's lithium, since the constitution grants COIMBOL a privileged position, an effective policy would include creating competition in exploration and production, and keeping the national mining company independent of the patronage needs of government while ensuring that it has sufficient capital to operate effectively.

Unfortunately for effective policymaking, Morales and MAS have no competition in the legislature. This absence of competitiveness on Bolivia's lithium policy in a context in which the dominant coalition favors the poor produces policy that scores high on resource nationalism, with little effective regulation to prevent the NOC from essentially serving as a mechanism for the distribution of private goods to the coalition's constituency. Though one may say that Morales' heart is in the right place because he wants to dignify and lift the indigenous out of poverty and powerlessness, he makes its success less likely by adopting a policy that is overly favorable to his constituency.

A sustained rise in inflation resulting from a loosening of fiscal policy, a continued slowdown in investment in the gas sector, and the progressive squeezing out of the private sector in the name of recovering state leadership of the economy could produce a slowing of the economic growth that fuels social programs. Morales has already been challenged by his constituency to move faster on his reforms;⁵⁸ they would likely reject any slowing of its pace. Street protests and blocked highways could convince the small middle class that Morales and MAS cannot rein in an increasingly radical left, and they could abandon Morales. At the very least, congressional and presidential elections in 2015 (when Morales is unable to run for a third term) could produce a disillusioned left sitting out and a middle moving to the right to give a pragmatic center-right electoral movement victory. One only needs to recall the dramatic shift in politics from 2002-2005 to appreciate the volatility of Bolivian politics. At worst, Bolivia could return to the violent social mobilizations of 2001-2005 and become ungovernable.

Leadership: Innovation and Risk Acceptance

The third and final key variable relates to whether a country's leader is innovative and willing to accept risks. Political leaders vary in the constraints within which they function and may retain important discretionary capacities and therefore have an ability to make a fundamental difference in policy.⁵⁹ Leaders are not just a sounding board for their constituencies; they may be able to tap into the demands of those who are, or could become, politically relevant. Whether or not leaders can take advantage of these opportunities to innovate within the constraints or push beyond them depends on their personal characteristics for innovation and acceptance of risk.

Innovation in policy is the development of a new vision or strategy for policy, not just the offering of an alternative idea. It is defined in the national context and thus is determined by whether anyone in leadership positions has pushed these policy positions in the past. Risk acceptance is assessed by a leader's willingness to accept proposals against the perspectives of his own party or constituency (moderate degree of risk) or by the leader's willingness to

⁵⁸ cf. LatinNews Daily, "Indigenous Groups Challenge Bolivia's Morales," April 20, 2010; Franz Chávez, "Bolivia: Morales Faces First Workers Protests," *IPS News*, May 5, 2010, <http://ipsnews.net/print.asp?idnews=51325>.

⁵⁹ Merilee S. Grindle and John W. Thomas, *Public Choices and Policy Change: The Political Economy of Reform in Developing Countries* (Baltimore: Johns Hopkins University Press, 1991).

challenge key government actors (Congress, the Supreme Court, or the military) who could cause his impeachment or overthrow (high degree of risk).

Innovation is an important characteristic that determines whether a leader is seeking to follow or restrain markets. Creating an independent regulatory agency is innovative in the national context because it dramatically alters existing patterns of rent appropriation and distribution. It is also risky because the expected increase in production and rents will be the result not only of the incentives provided by the government (and therefore controllable), but also of geology and the state of the international market (circumstances that leaders do not control). If an innovative leader is seeking to restrain the market (through private investment or consumption), he or she will have a plan for either effectively replacing private actors or creating incentives to induce them to adjust their business plans in accordance with the new policy.

Risk acceptance is important for two reasons. If a leader has new ideas but is timid about putting them on the agenda, institutional constraints will determine whether he puts forth these proposals. Only under very loose constraints will a risk-averse leader propose new ideas that do not have the possibility of immediate support. In contrast, a leader who is risk-acceptant and has new ideas will be quite willing to seek to create the political conditions that mitigate the institutional constraints. The combination of risk acceptance and lack of innovation is dangerous; it suggests a leader who is willing to push ahead on poorly conceived new ideas or ideas from a failed past. The leader who is both innovative and risk acceptant fits the category others have labeled a “political entrepreneur.” A political entrepreneur characterized by a high degree of risk acceptance is a “radical,” and she may be radical in the advocacy of pro-market or statist positions. The moderately risk acceptant leader, in turn, fits economist Albert Hirschman’s classic category of a “reformmonger,”⁶⁰ and could advocate pro-market or statist reforms.

These personal characteristics affect energy policymaking in the context of the inclusiveness of the political system and its competitiveness. A high degree of inclusiveness in the political system, combined with low levels of competition in the legislature and a president who is innovative and highly risk acceptant, creates a situation in which the leader will have free hand

⁶⁰ Albert O. Hirschman, *Journeys Toward Progress* (New York: Norton, 1973).

to direct rents to his constituency. Resource policy will thus be characterized by high levels of resource nationalism.

Morales is an innovative and highly risk acceptant leader. He is leader of the Coca Growers Federation and was its leader during the years when previous Bolivian governments used the military to eradicate coca production. Morales led a political revolution and a social upheaval that has produced many advantages for those in whose name he governs. Most Bolivians did not benefit from the natural gas bonanza that began after liberalization of the sector and privatization of Bolivia's state oil company, Yacimientos Petrolíferos Fiscales Bolivianos (YPFB), in the late 1990s.⁶¹ It's not just that the poor remained poor. The quality of life index of the Economist Intelligence Unit—based on GDP per capita, life expectancy, security risk, corruption, and gender equality—indicates that the country declined from 67th place in 2000 to 86th in 2006, just before Morales came to power. But in 2009, only three years after Morales took office, Bolivia moved to 70th place, significantly improving its ranking. The Morales government between 2007-2009 implemented programs to lower infant and child mortality by providing uninsured women with prenatal and post-natal care, increased school attendance of children in poor families, and provided the elderly living in extreme poverty with expanded public pensions.⁶² The government also increased the minimum wage by an average annual rate of approximately 10 percent while exercising fiscal restraint, as demonstrated by the 0.9 percent inflation rate for 2009.⁶³

The most efficient and effective energy policy will develop within an inclusive political system that balances the private needs of constituencies with the public good. In an inclusive political system, every major group in society believes they are represented to the extent that their needs are given serious consideration in all relevant policies. Each group would prefer that policy be made in its own interest, i.e., provided private goods, but will make use of public goods as well. But because politics is competitive and the constituencies of politicians are large (due to the

⁶¹ David R. Mares, Peter Hartley, Kenneth Medlock, "Energy Security in a Context of Hyper-Social Mobilization: Insights from Bolivia" (working paper, James A. Baker III Institute for Public Policy, May 2008).

⁶² Mark Weisbrot, Rebecca Ray, and Jake Johnston, *Bolivia: The Economy During the Morales Administration* (Washington, D.C.: Center for Economic Policy Research, December 2009).
<http://www.cepr.net/documents/publications/bolivia-2009-12.pdf>.

⁶³ Chávez, 2010.

inclusive character of the political system), politicians are pushed in the direction of designing policy that produces more public than private goods. (No political system can ever eliminate the provision of private goods.) The provision of public goods means that society as a whole is receiving benefits, thus consolidating the inclusiveness of the political system. The innovative but cautious leader can discover a focal point to bring the competing forces in the legislature together, but will not push his own constituency's agenda in a game of chicken with the legislature.

Bolivia's political system does not reflect these ideal characteristics. Yet, it is possible that the country could move in this direction. The coalition behind Morales is beginning to fray after four years in power. Lithium politics are getting caught up in old regional autonomy issues that cross ideological boundaries. In 1992, the Potosi Civic Committee opposed a proposed lithium contract with the U.S. company Lithco, which then invested in Argentina. Potosi opposed it because it believed that the company, national elites, and rest of nation would get the bulk of the benefits, and not the local constituency, as had happened in the past with the silver and tin mined from the region. They were already regretting the decision by 2003.⁶⁴ In 2006, the Potosi Civic Committee opposed turning the Uyuni salar into federal land, noting that it was already state property.⁶⁵ Today locals want it, but continue to worry about the distribution of rents even with Morales as president, a governor from Morales' own party (MAS), and supporters of Morales in leadership positions within the Civic Committee.⁶⁶

On March 10, 2010, the Morales administration created the Bolivian Enterprise of Evaporative Resources (Empresa Boliviana de Recursos Evaporíticos, or EBRE), a division of the national mining company COIMBOL. The central government put the company in Bolivia's legislative capital, La Paz, to save administrative costs, to facilitate negotiations with international investors, and because relevant technical expertise is lacking in Potosi. Regarding the

⁶⁴ Larry Rohter, "Letter From the Americas; Grievances That Can Bring Globalization to Grief," *New York Times*, November 5, 2003.

⁶⁵ Harvey Beltrán, "Civic Committee Questions Nationalization of Uyuni Salt Flats – Bolivia," *Business News Americas*, April 26, 2006, http://www.bnamericas.com/news/mining/Civic_committee_questions_nationalization_of_Uyuni_salt_flats.

⁶⁶ "Potosinos Reclaman Más Ingresos Por Litio," *El Diario*, March 18, 2010, http://www.eldiario.net/noticias/2010/2010_03/nt100318/5_06nal.php.

distribution of rents, Mining Minister Jose Pimentel at this point has only committed to studying the issue ‘in depth’ once the projects are operating.⁶⁷ But in a decision that worried people back in Potosi, the board of directors of EBRE did not have any representatives from the region.⁶⁸

But after local threats to strike and set up roadblocks, the decree creating EBRE was rescinded 10 days later, on March 20, 2010. Mining minister Pimentel, however, announced that the Uyuni project would be overseen by COIMBOL’s National Directorate for Evaporative Resources. Despite the decision to repeal the decree, a division of the state-run Bolivian Mining Corporation will remain in charge of the Uyuni project,⁶⁹ and thus the issue will remain a potential source of division within MAS. Potosi leaders from the state legislature, university, Central Obrera (major labor union), and the Civic Committee gathered together and quickly put together a proposal for the creation of EBRE as an autonomous and fully funded company that would be headquartered in Potosi.⁷⁰

The April 2010 elections for Bolivia’s governors and mayors exposed numerous tensions within the Morales coalition. The MAS party of Morales claims to represent local communities, but in many places and to the chagrin of locals, the party elites designated candidates. In addition, Morales had an alliance with a party further to the left of MAS, the Movimiento sin Miedo (Movement without Fear, or MSM). But Morales and MAS attempted to cut out the MSM by running competing MAS candidates, verbally attacking them, and informing the faithful that they had to give Morales a MAS majority everywhere.

In response to continued opposition by elected leaders at the regional level, the decision by the Morales government to bring numerous former and current government officials to trial for corruption and other offenses raises questions about whether the Morales government’s attempts to deal with opposition and dissension will hasten a split within his coalition. Morales’ list

⁶⁷ Ibid.

⁶⁸ Juan Carlos Zuleta, “Obstacles to the Creation of a Bolivian Lithium Export Market,” March 22, 2010, https://energy.wesrch.com/User_images/Pdf/YL6_1269908937.pdf.

⁶⁹ “Ambiciosos Proyectos Mineros No Avanzan,” *El Diario*, April 6, 2010, <http://www.eldiario.net/>.

⁷⁰ “Bolivian Government Backs Off Plan to Create State Lithium Firm,” *Latin American Herald Tribune*, March 22, 2010, <http://laht.com/article.asp?ArticleId=354127&CategoryId=14919>; “Ultimátum. Organizaciones Advierten con una Huelga Indefinida,” *La Razon*, March 19, 2010, http://www.la-razon.com/versiones/20100319_007036/nota_262_972257.htm.

includes three former presidents (Eduardo Rodríguez, Jorge Quiroga, and Carlos Mesa; there is already an extradition request for Sánchez de Lozada, who is in the United States), one vice-president (Víctor Hugo Cárdenas, who is indigenous), two former allies (Manfred Reyes Villa⁷¹ and Juan del Granado⁷²), members of his former allied party, MSM, and three sitting governors from the opposition.⁷³ If the left splits or a political center is recreated by these tensions, competition within the legislature will return.

Morales cannot run for a third term, so he will give way to a new president in 2015, just as the lithium market is likely to be maturing and the results of Bolivia's current lithium policy will be coming to fruition. If MAS puts forth a candidate for president similar to Mauricio Funes of the Frente Farabundo Martí para la Liberación Nacional (FMLN, the former guerrillas) in El Salvador, or Luiz Ignacio Lula de Silva in Brazil, the country could have an innovative but cautious leader. Under these conditions, Bolivia's lithium policy could be focused more on stimulating production rather than maximizing rents in the short-term.

Conclusion

The market for lithium is uncertain, but has great potential. Bolivia possesses huge resources, but everyone is now looking for lithium and discoveries are being made elsewhere (e.g., Mexico), previously uneconomic sources are being evaluated (e.g., the byproducts of geothermal power plants), battery efficiency will undoubtedly improve, and recycling will be a factor affecting future demand. The fact that there is no infrastructure in the Bolivian lithium zones makes mining costs higher than those in other places already producing, such as Chile, Argentina, and Australia.

The market, therefore, is telling Bolivia that it would be best to get in now. Geology is telling Bolivia that there is more out there. Yet Bolivians are acting as if they can set the terms on which their lithium is exploited, and insisting that those terms will be very demanding. This policy will

⁷¹ EIU, December 2009, p. 10.

⁷² *La Razón*, "El Gobierno Advierte a Del Granado con Chonchocoro" April 2, 2010.

⁷³ El Deber y Agencias, "Reactivan los Juicios Contra Tres Gobernadores Electos," *Los Tiempos*, April 7, 2010; Alvaro Arias, "La Contraloría Denuncia a Costas por Malversación," *La Razón*, August 27, 2010.

likely fail, but articulating that fact alone will not change policy. The fact that Morales/MAS represent a previously outcast constituency and control policy means that they don't have to compromise with domestic opposition and so can adopt any policy they want, not one that has been vetted by those who have some reason to be skeptical of its claims.

Public policy is about making tradeoffs among desirable goals—but if you don't have competition and have scapegoats if things go wrong, you don't have to choose. In the case of Bolivia's lithium, the goals are to produce, generate maximum rents, and distribute those rents to the Bolivian poor and indigenous through a variety of direct public programs. Given geology and market conditions, insisting on maximizing rents is likely to keep Bolivian lithium out of the market entirely or only as a secondary supplier, thus generating less wealth for Bolivia to distribute. The scapegoats will be the capitalist system, the old elites, and the foreign mining companies. Ultimately, many will say, better to leave it in the ground.

Yet the tensions within the Morales/MAS coalition that dominate Bolivian politics mean that its monopoly is not assured. If those who have lost out for so long can see the benefits of foreign investment in their daily lives and communities, they can pull back to the middle and look for alternative political representation. Sumitomo's community projects and the Japanese aid programs are the type of alternatives that offer some hope of success by providing immediate benefits and not requiring a blind faith in privatization and the trickling down of benefits over the long term.

Unless Bolivia lithium policy finds room for the efficiency gains that partnership with private investors can bring, the country will at best likely repeat its experience in natural gas. Less than a decade ago, as a result of its natural gas discoveries, the country was poised to be the "hub" of a South America energy ring. Its extreme resource nationalism, however, prompted its neighbors to diversify their energy sources, thereby reducing dependence on an erratic Bolivian supply. Bolivia's consequent loss of market share means less revenue to finance social and economic development in Bolivia. And, given the current speculative nature of the lithium market, it's

even possible that Alfredo, the old miner, was prescient when he said that he did not believe that lithium would ever be extracted.⁷⁴

⁷⁴ Kahya, 2008.