

Lithium Bidding Process: “Strategic” Mineral?

The “strategic” character ascribed to lithium by the government is highly questionable due to the resource’s abundance and the future global demand estimation. Therefore, in the light of the legal framework’s rigidity and the mineral’s current price, the decision of the Ministry of Economy of calling for national and international public bidding to subscribe a special lithium-production contract with the Chilean State, seems to be the most reasonable formula.

A recent debate about the State’s idea to produce lithium in association with private capitals has raised a series of confusions regarding the juridical nature of the state property upon this substance, its juridical and tax system and economic feasibility. In this respect, we should revise the regulatory framework of this activity and the potential economical consequences for our country.

Our legislation groups mineral substances in two categories: i) concessionable and (ii) non-concessionable or reserved. The existing code, containing elements of the former codes sustains as a general rule that all mineral substances – whatever their nature – are concessionable, that is, subject to a mining concession. The only exception is mineral substances reserved to the State and those that cannot be subject to mining rights, since they are not considered as such.ⁱ So, anyone can apply to a judicial concession for prospecting or exploitation of concessionable substances, with the guarantees of all due process.

But when it comes to non-concessionable substances, the system is different. Both the Constitutionⁱⁱ and the Organic Lawⁱⁱⁱ have specifically classified non-concessionable substances, reaffirming this standard by the Mining Code^{iv}. These are: (a) liquid or gaseous hydrocarbons; (b) lithium; (c) deposits of all kinds existing in maritime waters subject to national jurisdiction, except those having access

through tunnels from land; and (d) deposits of all kinds partially or entirely located in areas that, according to law, are considered important for national security with mining effects.^v

Therefore, and due to its so-called “strategic” character, lithium had been reserved to the State by Decree Law 2,886 of 1979, and was maintained in the Constitutional Organic Law (L.O.C.) years later. Of course, and fully respecting the right of ownership, non-concessionability statement does not impact the mining concessions constituted before the corresponding non-concessionability statements made by the law.

The question then is how the State, as owner of these deposits, can take advantage of these substances. In this respect, the Constitution itself indicates that prospecting and exploitation of deposits containing substances that are not liable to concession may be directly executed by the State; its companies; or also through administrative concessions (non-judicial as in the case of concessionable ones) or special operation contracts, with the requirements and under the conditions that the President of the Republic may fix, for each case, by Executive Decree. In the past, the President has already made use of this right concerning operation contracts for prospecting and exploitation of oil and other circumstances, which have been governed also by the executive orders ratified by the Congress, DFL Nr 1 and DFL Nr 2 of 1986 of the Ministry of Mining.^{vi}

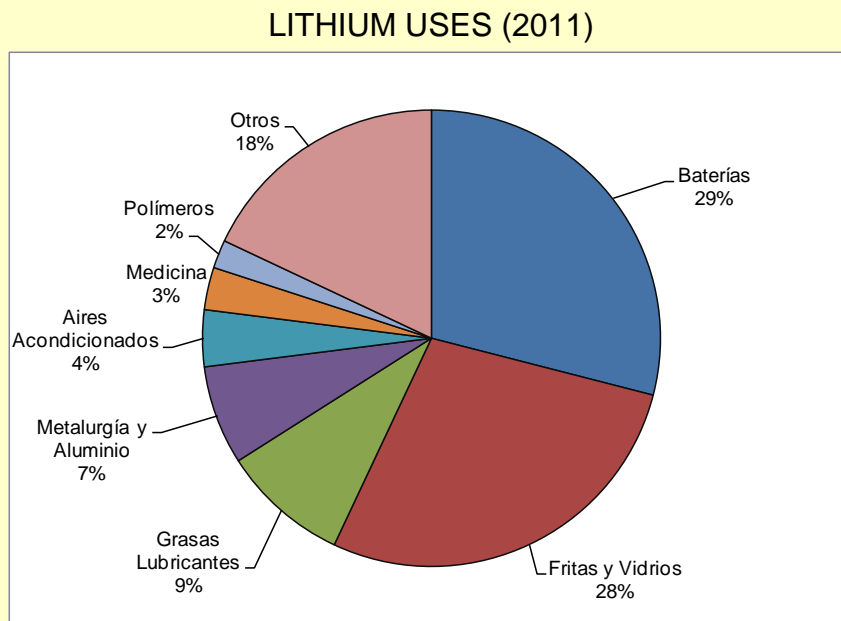
Lithium: Market and “Strategic” Character

With the purpose of having a better perspective on the debate about potential prospecting and exploitation, by the private sector, of a fraction of the deposits known today for this mineral substance, and furthermore, the convenience of the present “strategic” character ascribed by the law, it is crucial to know the present and future uses, the prevailing conditions in the world market and the actual availability of the mineral.

Lithium^{vii} uses are varied and they have shifted over time. While at the beginning of the seventies the main lithium use went to the production of aluminum (50% of the market), during the following decades the production of ceramics, glass and frit^{viii} crowded the aluminum production out. Currently, the main lithium uses are related to the manufacture of batteries, ceramics, glass and frit, and lubricating greases. Chart 1 shows the market’s composition for

2011, corresponding to a world production between 120,000 and 140,000 tons LCE.

Chart 1



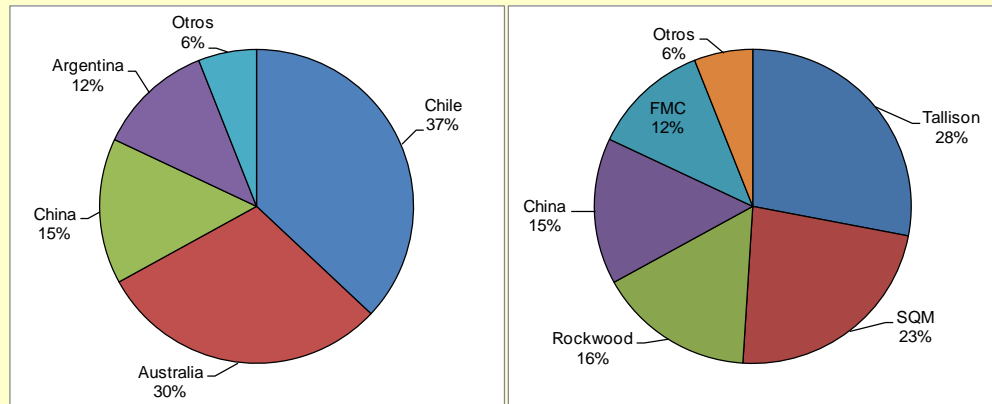
Source: SignumBOX

This can be considered a comparatively small market with a much reduced number of actors capable of comfortably satisfying the demand. In 2011, through the *Sociedad Química y Minera de Chile S.A. (SQM)* and the *Sociedad Chilena del Litio (SCL)*^{ix}, Chile contributed with 37% of the global production, followed by Australia with 30%, China with 15% and Argentina with 12%. In spite of its leading role in world production, Chilean exports of lithium carbonate scarcely reached 204 million dollars FOB, which is equivalent to roughly 0.42% of the Chilean mining exports and less than 0.26% of the total exports, a value just 36% higher than the exports of marine and table salt in 2011, a clear evidence of the size of this market.^x

As for the relative shortage, we should observe the price behavior. Between 1953 and 2009, the price of lithium increased 20% less than the USA CPI (Chart 3). The evolution of lithium effective prices (CLE) shows that the resource availability has increased in the last 60 years instead of decreasing as might be expected. In fact, the market's duopoly conditions that prevailed for years, tended to disappear with the entry of SQM in the nineties and Tallison in 2007.^{xi}

Chart 2

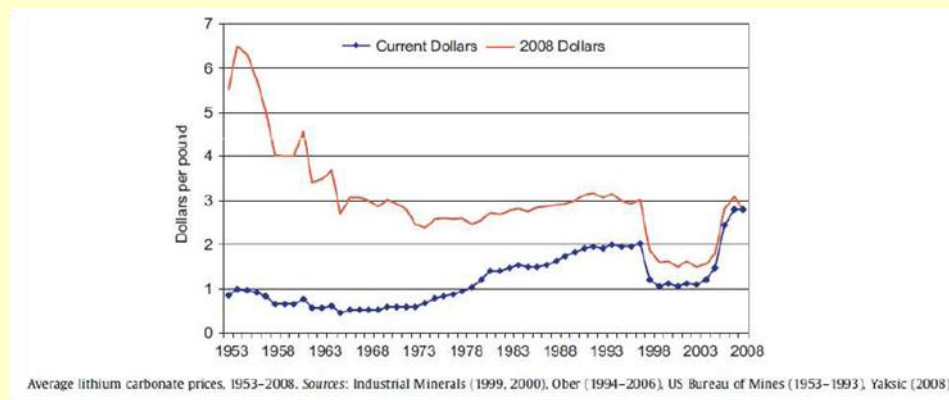
LITHIUM OFFER BY COUNTRY AND LITHIUM OFFER BY PRODUCER (2011)



Source: SignumBOX

Chart 3

PRICE EVOLUTION OF LITHIUM CARBONATE (1953-2008)



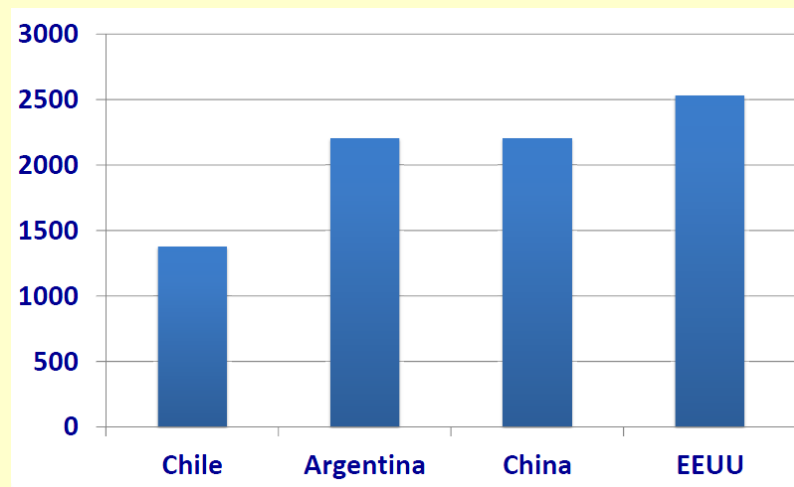
Source: A. Yaksic, J.E. Tilton. Resources Policy 34 (2009) 185-194.

Although at present there are optimistic visions concerning the future lithium demand, as a result of the electrification of the transportation system and the distant but incipient use as supplies for electric generation from nuclear fusion^{xii}, these demand perspectives have encouraged the prospection of about 90 to 120 new deposits, which are distributed in more than 11 countries^{xiii}. In general, lithium, in any of its different forms, can be found at global level. The advantage of

Chile is that it is produced at the lowest cost in the world and that there are abundant reserves in salt deposits and brines, whose exploitation is relatively more economical versus, for example, the production of metallic lithium (Chart 4).

Chart 4

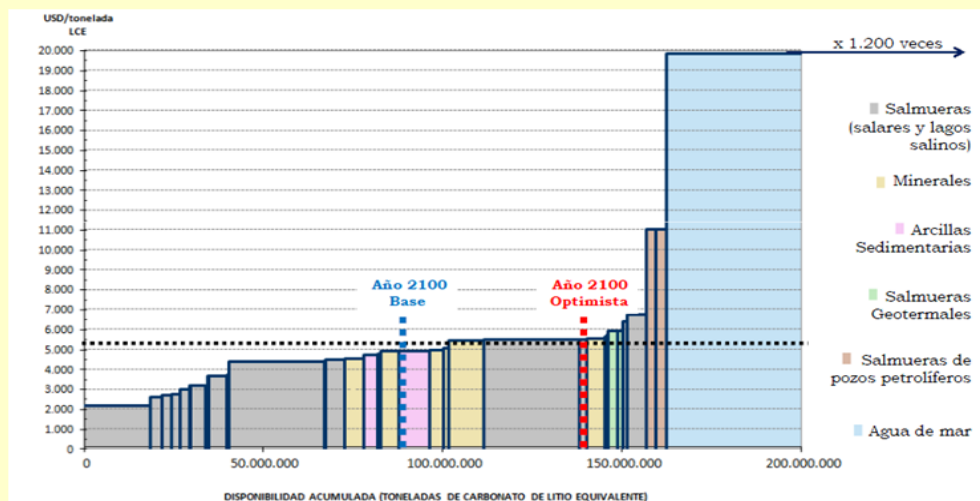
AVERAGE COSTS, US\$ TON CLE



Source: Cochilco presentation, 2011.

Chart 5

ACCUMULATED AVAILABILITY CURVE (TON CLE)



Source: Yaksic, Andrés. "Análisis de la disponibilidad de litio en el largo plazo", presented in the seminary "The Debate on Lithium".

Andrés Yaksic, Master in Mineral Economics and today Lithium Business Development Vice-President in SQM, estimates a long-term lithium availability curve –offer- which suggests that there are more than 100 million tons available for exploitation at world level, at less or equal costs, at the existing market price. In addition, Yaksic estimates that lower price augmentations, increase the availability of economically affordable minerals in a considerably more proportional way, that is, he suggests the existence of high elasticity-lithium long term offer price (Chart 5). In the extreme, if lithium price should increase 4 times, it would be economically affordable to obtain lithium from seawater, and thus the availability –in practical terms- would be infinite^{xiv}. Other estimations of global availability of this resource suggest that, given the existing extraction, there would be lithium availability for approximately 1,600 years.^{xv}

In view of all this background, we do not see any special conditions of lithium availability, access or market structure, which justifies considering it in a different way than other concessionable mining substances. In no country in the world, except Chile, lithium is classified as “strategic”, except in the province of Jujuy, Argentina, which has not prevented its exploitation in the neighbour country until now.^{xvi}

It does not seem reasonable to anticipate lithium availability problems during the 21st century due to the depletion of natural resources, although it is probable that there is a demand increase greater than the economy average, but always in the context of a market that is turning more and more competitive, due to the larger production in China and other countries of the world; thus, if we want to get any benefit whatsoever, it is essential to ensure huge investments, either public or private, that allow Chile to continue as a relevant actor in the market.

We might also add that nobody knows for how long lithium will be an essential component in the battery industry, since the technological field is always doing research in order to produce cheaper and more effective substitutes. Hence the need to develop these resources as soon as possible, before a new element replaces lithium and thus reducing its current value, and repeating what occurred once in Chile with saltpetre.

Conclusions

Lithium belongs to the substances that the State has reserved for itself– together with liquid and gaseous hydrocarbons – due to its

“strategic” character, which is practically unique at global level. This “strategic” character is highly questionable due to the resource’s abundance and the global future demand estimation. Therefore, in the light of the legal framework’s rigidity and the mineral’s current price, the decision of the Ministry of Economy of calling for national and international public bidding to subscribe a special lithium-production contract with the Chilean State (locally known as CEOL), seems to be the most reasonable formula to make the advantages and efficiency of private mining compatible with the rational exploitation of the State’s mineral wealth.

This option seems the least risky for the State and the most compatible with the existing juridical framework, since the State will ensure an important resource entry due to the bidding price and a percentage of future sales. On the other side, the CEOL will grant the contractor the right to prospect, produce and process a quota of up to 100,000 tons of metallic lithium, in any region of the national territory, except those areas covered by mining concessions constituted in accordance with the Mining Code of 1932, within a 20-year term since the CEOL date. Likewise, the contractor shall trade in the country or export the lithium, under the terms and conditions stipulated in the CEOL.

In brief...

IN VIEW OF THE LITHIUM EXPLOITATION POLEMIC:

- Its “strategic” character is highly questionable due to the resource’s abundance and the future global demand estimation.
- In 2011, Chile contributed with 37% of the global production, but in the world’s leadership production, Chilean exports of lithium carbonate scarcely reached 204 million dollars FOB, which is equivalent to roughly 0.42% of the country’s mining exports.
- The legal framework’s rigidity and the mineral’s current price allow concluding that the decision of the Ministry of Economy of calling for national and international public bidding to subscribe a special lithium-production contract (CEOL) with the Chilean State seems to be the most reasonable.

ⁱ Constitutional Organic Law (L.O.C.) on Mining Concessions, Art. 3, subparagraph 2 and Mining Code, Art. 5.

ⁱⁱ Political Constitution of the Republic (C.P.R.) Art. 19 Nr 24, subparagraph 10.

ⁱⁱⁱ L.O.C. on Mining Concessions, Art. 3, subparagraph 4.

^{iv} Mining Code, Art. 7.

^v Lira O, Samuel. *Curso de Derecho Minero* (Course on Mining Law). Editorial Jurídica de Chile. 1992, p.55.

^{vi} Likewise, in the administrative concessions and operation contracts concerning exploitations located in areas that are relevant for national security, the President of the Republic is authorized to put an end, at any time, without cause and with the corresponding indemnity.

^{vii} It is inaccurate to speak of “the lithium”, since there is a variety of tradable lithium compounds today, the most important one being lithium carbonate; thus, for comparing and measuring production, the term “Tons of Lithium Carbonate Equivalent” (LCE) is frequently used.

^{viii} “Glass frit is a supply required by industries of the metal mechanical sector aiming their production at the manufacture of tile articles”. Background for a Public Policy on Strategic Minerals: Lithium. COCHILCO, 2009.

^{ix} Chilean Lithium Society, which has operated under the names of Chemetall and currently Rockwood Lithium.

^x Banco Central de Chile.

^{xi} Lagos, Gustavo. “*Análisis Histórico Industria del Litio*”, presented in the seminary “The Debate on Lithium”. November 2011.

^{xii} “According to the prognosis on lithium use and consumption for fusion reactors, between 6 and 9 lithium tons a year would be necessary to generate 1.5GW during one year approximately. Background for a Public Policy on Strategic Minerals: Lithium. COCHILCO, 2009.

^{xiii} Yaksic, Andrés. “*Análisis de la disponibilidad de litio en el largo plazo*”, presented in the seminary “The Debate on Lithium”. November 2011.

^{xiv} Op. Cit.

^{xv} Lagos, Gustavo. Op. Ci

^{xvi} Desormeaux, Daniela. “*Litio – Demanda actual, potencial y proyecciones*”, presented in the seminary “The Debate on Lithium”. November 2011.