COCHILCO
Ministerio de Minería

Gobierno de Chile

Lithium Market and Chilean Production

COCHILCO – Chilean Copper Commission

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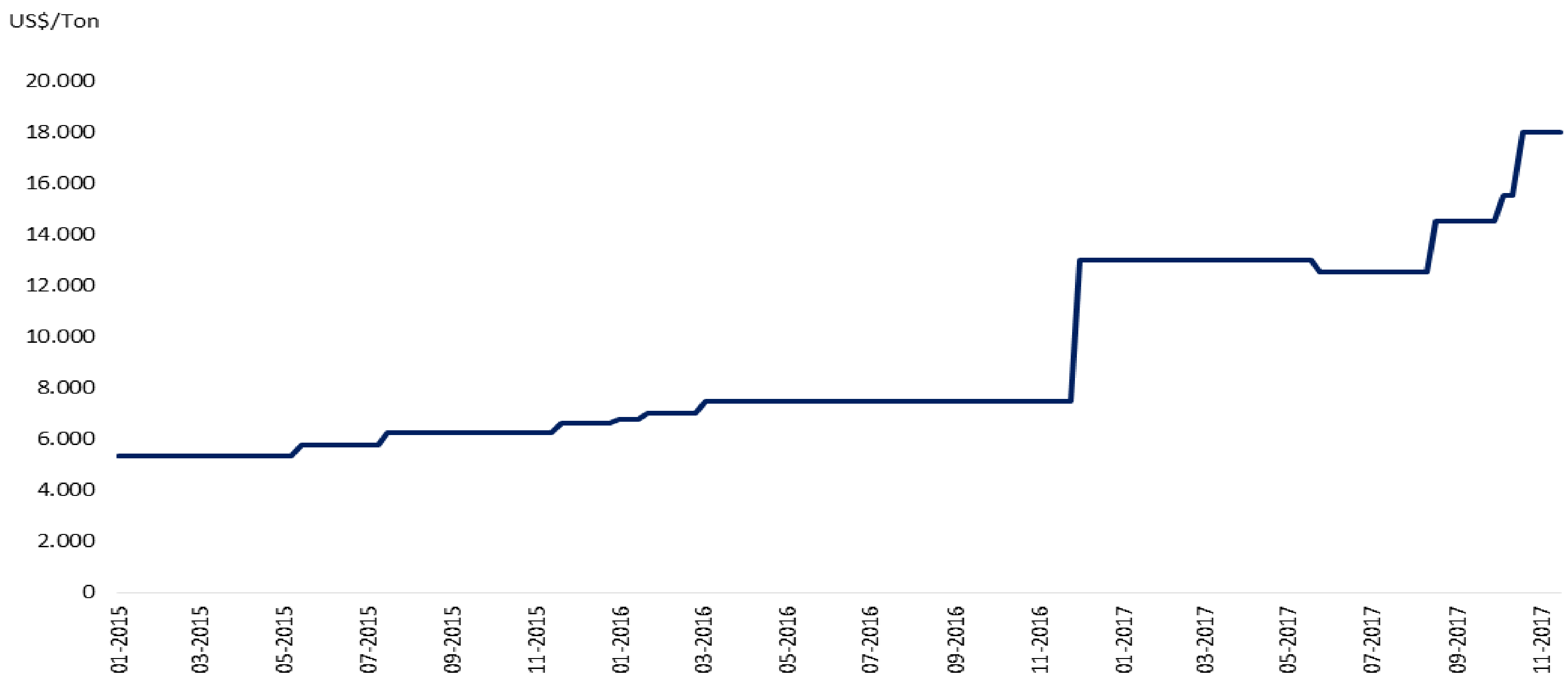
Content

1. Lithium Market.
2. Lithium Chilean Production and Investment Portfolio
3. New Chilean Lithium Policy
4. New Lithium Exploitation Contract Between Corfo and Albemarle
5. Final Comments

LITHIUM MARKET

EVOLUTION OF LITHIUM CARBONATE PRICES
(large contracts, packed in bags, CIF Asia)

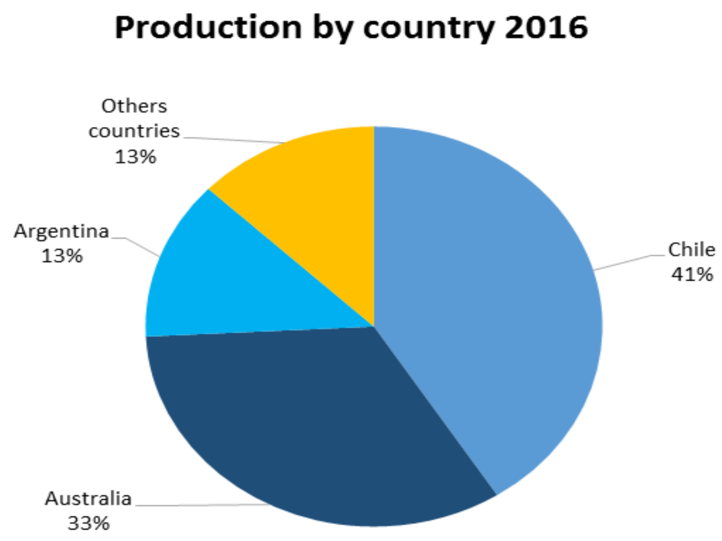


Lithium LiC2O3, min 99-99,5% (large contracts, packed in bags, CIF Asia)

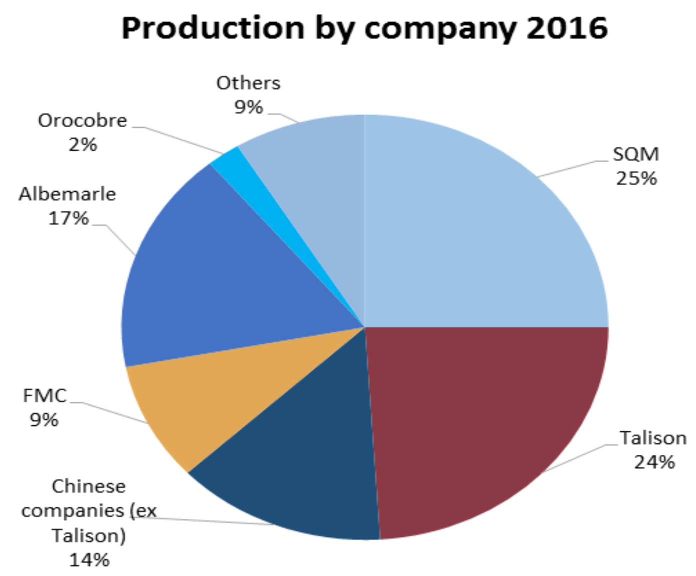
The lithium carbonate price in China through contracts continues to rise, registering values between US $ 16.000 / ton and US $ 20.000 / ton in November 2017.
The average price reached US $ 18.000 / ton.

Source: Industrial Minerals

WORLD PRODUCTION 2016



Sources: Sernageomin Chile, USGS



Source: Corfo and companies

World Production
The global production of LCE reached around 201.310 tons in 2016. Chile reported a production of 77.284 tons of LCE
It remains concentrated by companies and countries:

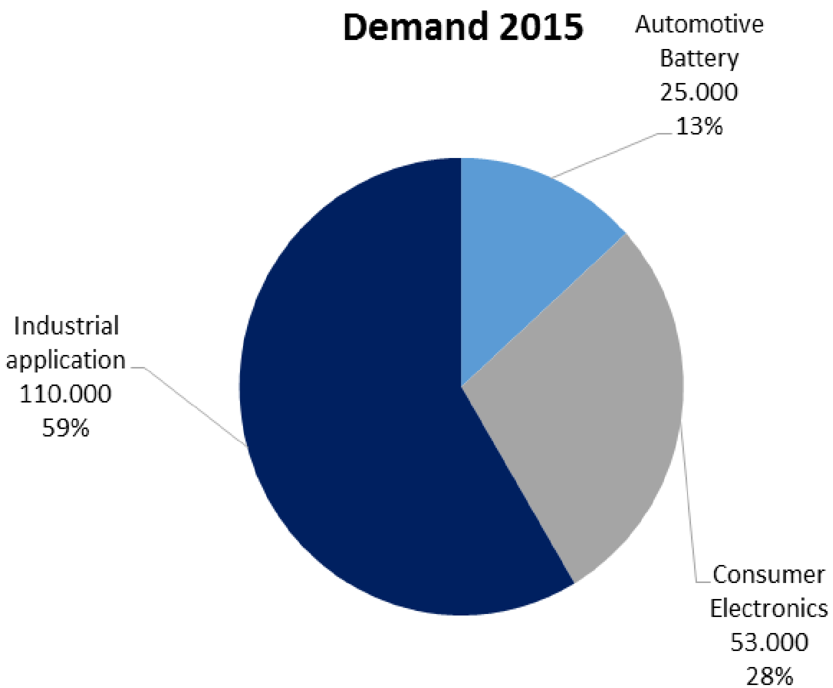
75% of the global offer in 4 companies: SQM, Albemarle, FMC and Talison.
87% of the world supply in 3 countries: Chile, Argentina and Australia.

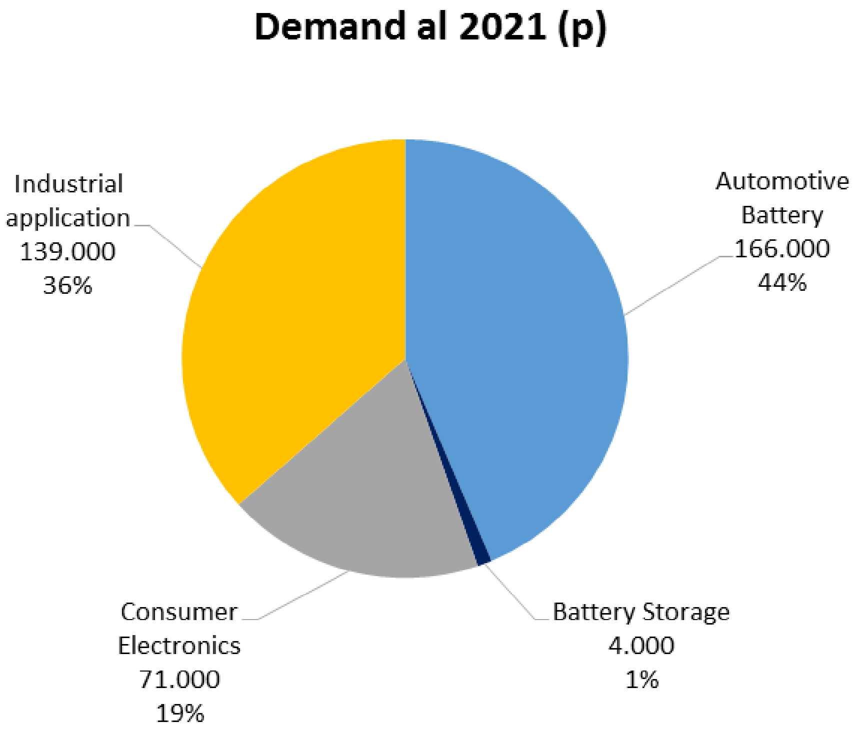
2016 is the beginning of a structural change in the market in terms of lithium supply by companies. Income of other actors such as the Olaroz de Orocobre project (Argentina), Mt Cattlin (Australia) of Galaxy and the Mt Marion (Australia) project of Neometals.

At the country level, in the long term the level of concentration will be maintained with respect to the origin of production, however Australia will reach a higher level of participation.

LITHIUM MARKET

- The lithium market in 2017 and for the next five years will have a strong demand.
- The demand driver is the Electric Vehicle.



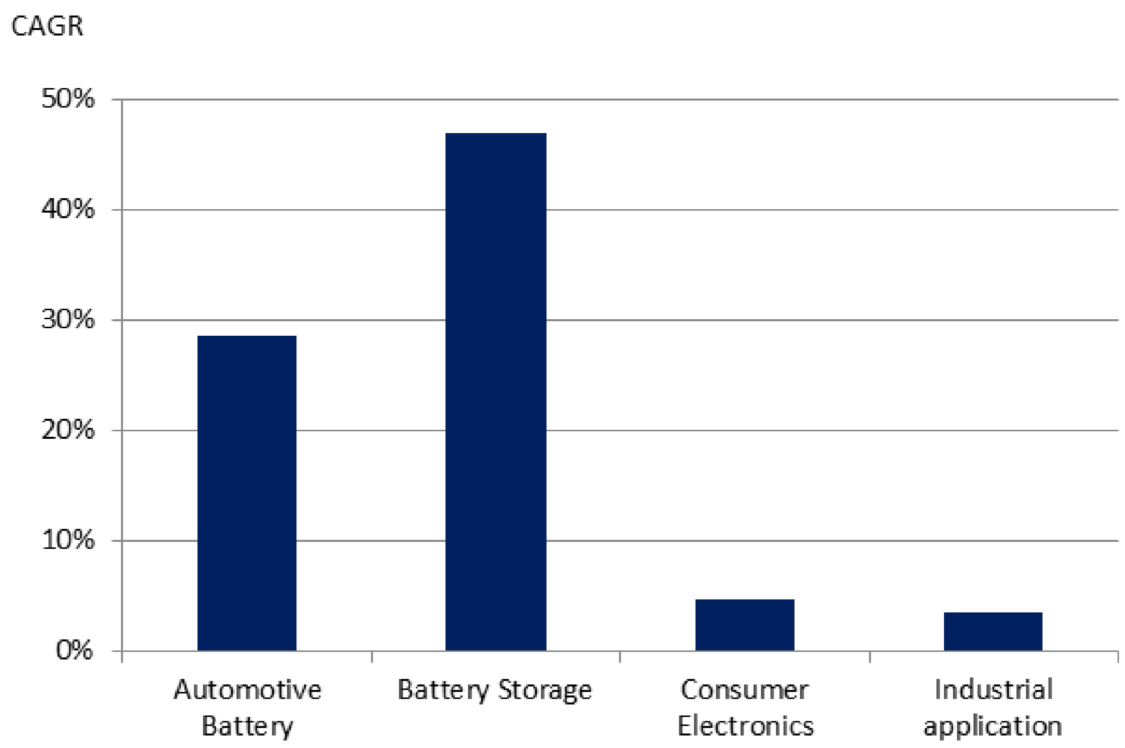


Source: Citi Research

LITHIUM DEMAND BY SECTOR

High Compound Annual Growth Rate

- Automotive Battery
- Battery Storage



Source: Cochilco in base Citi Research, MS, Cannacord

OVER SUPPLY IN 2018-2019 …..

Projects start production in 2016-2018

Project	Company	Country	Nameplate Production (LCE)	Initial Production	Source
Olaroz	Orocobre	Argentina	17.500	2016	Brine
Mt Cattlin	Galaxy	Australia	20.000	2016	Mineral
Mt Marion	Mineral Resource Neometals Ganfeng	Australia	50.000	2017	Mineral
La Negra fase 2	Albemarle	Chile	20.000	2017	Brine
Pilgangoora	Altura	Australia	33.000	2018	Mineral
Pilgangoora	Pilbara	Australia	44.000	2018	Mineral

Source: Cochilco with information of Lithium Americas, Galaxy and companies

Others Projects

Project	Company	Country	Initial Production	Nameplate Production (LCE)
Cauchari-Olaroz	Lithium Americas SQM	Argentina	2019	25.000
Sal de Vida	Galaxy	Argentina	2020	25.000
Whabouchi	Nemaska	Canada	2018	28.000
Rose	Critical Elements	Canada	2021	31.000
Olaroz fase 2	Orocobre	Argentina	2019	17.500
La Negra 3	Albemarle	Chile	2019	38.000
Rincon	Enirgi	Argentina	2019	50.000
Wodgina	Mineral Resource	Australia	2018	33.000
Mt Holland	Kidman SQM	Australia	2020	38.400
Expansión Salar del Carmen	SQM	Chile	2018	21.600
Bacanora	Sonora	Mexico	2019	35.000
Centenario-Ratones	ERAMET	Argentina	2021	20.000
Sal de los Angeles	Lithium X	Argentina	s/i	20.000
Authier	Sayona	Canada	s/i	25.320
Tianqui	Talison	Australia	2020	80.000

Source: Cochilco with information of Lithium Americas, Galaxy and companies

LITHIUM CHILEAN PRODUCTION AND INVESTMENT PORTFOLIO

LITHIUM TRIANGLE: CHILE, ARGENTINA AND BOLIVIA
SALAR DE ATACAMA

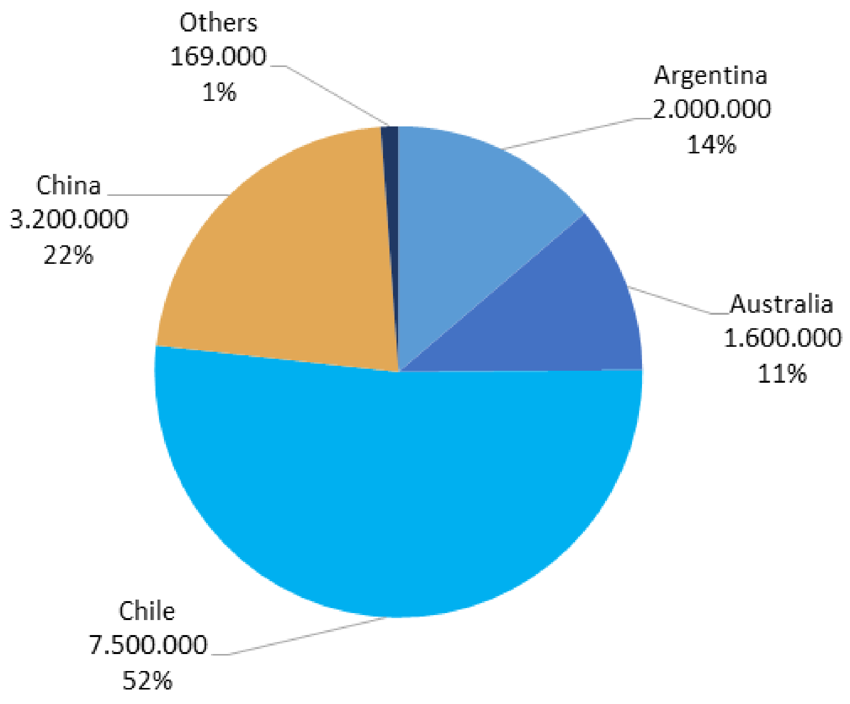
Source: El litoral

Chile, Bolivia and Argentina have 54,3% of world lithium resources.

Salar de Atacama is currently the territory with the highest global production of lithium from brine. It is favored by the very arid climate, a very high rate of evaporation and a high concentration of lithium.

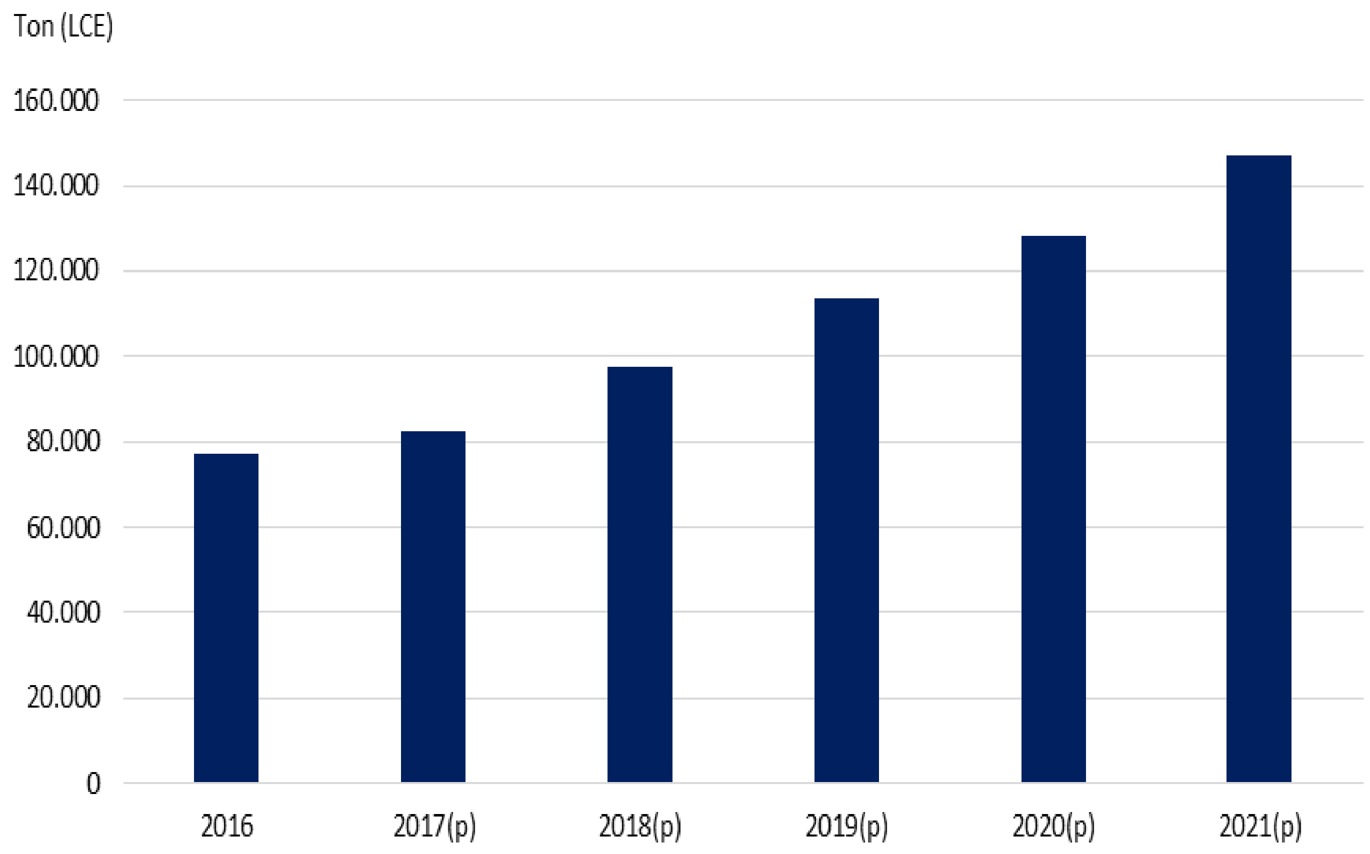
Corfo, a Chilean State Corporation, owns the mining concessions of a large part of the Atacama salt flat and leases it to the Soquimich and Albemarle companies to exploit lithium.

LITHIUM RESERVES BY COUNTRY 2016



Source: USGS

LITHIUM CHILEAN PRODUCTION FORECAST



Source: COCHILCO

MINNING INVESTMENT PORTFOLIO IN CHILE, 2017-2026

Portfolio US$ 64.856 Millions

Lithium Projects US$ 480 millions.

- **Enlargement Planta La Negra - Fase 3**
  Albemarle-investment US$ 300 millions.

- **Enlargement Salar del Carmen**
  SQM-Investment de US$ 180 millions.

Source: COCHILCO

NEW CHILEAN LITHIUM POLICY

NATIONAL LITHIUM COMMISSION

The President of the Republic created, in June 2014 the National Lithium Commission through Supreme Decree No. 60 of 2014.

Decree defined the purpose of the commission as "to generate a national lithium policy that promotes the sustainable development of this industry, considering the social, economic and environmental axes"

SUSTAINABLE DEVELOPMENT

MAIN AGREEMENTS AND PROPOSAL OF THE NATIONAL LITHIUM COMMISSION

It is suggested that Codelco or one of its subsidiaries initiate the project for the exploitation of lithium in the salt flats of Maricunga and Pedernales.

MAIN AGREEMENTS AND PROPOSAL OF THE NATIONAL LITHIUM COMMISSION

Change in the relationship between a productive project and communities.

Communities have the rights to perceive benefits and be adequately compensated for the negative externalities that projects can generate.

It is considering the “shared value” concept.

OTHER AGREEMENTS AND PROPOSAL OF THE NATIONAL LITHIUM COMMISSION

- Strengthen the public institutions linked to the governance of the salt flats.
- Need to generate policies to encourage research and technological development of its extraction form and its multiple uses.
- Capture economic income for the State with a look long term, which includes the payment of a royalty at the final sale price.
- Add value in all productive process before and after the extraction of lithium itself.
- Creation of the CORFO Non-Metallic Mining and Governance Committee.

NEW LITHIUM EXPLOITATION CONTRACT BETWEEN CORFO AND ALBEMARLE

NEW LITHIUM EXPLOITATION CONTRACT BETWEEN ALBEMARLE AND CORFO SIGNED IN 2016 THAT CONSIDER PROPOSALS OF THE NATIONAL LITHIUM COMMISSION

Payment of royalties to CORFO on sales between 6,8% and 19,8% according to the price of lithium carbonate sold. CORFO is a the state Chilean Economic Development Agency owns the mining concessions of a large part of the Atacama salt flat and leases it to Albemarle to exploit lithium.

Contribution between US $6 million and 12,4 million per year for research and development in Chile. Most of these resources will be invested in creating technological capacity in the Antofagasta region.

Inclusion of local and indigenous communities in schemes of shared value with Albemarle. The communities surrounding the operation will participate in the benefits of the company, receiving 3,5% of annual sales.

Albemarle Chile will offer its lithium products at the lowest price of export market parity of the last six months for up to 25% of its annual production capacity to companies installed in Chile that produce lithium cathodes, lithium battery components or another product of added value.

FINAL COMMENTS

FINAL COMMENTS

Challenges for lithium exploitation

- Enviromental (Salt flats are fragile ecosystem).
- Shared Value with local communities.
- Higher Payments for the State.
- Include add value products. Not only produce lithium carbonate.
- Investment in research and development in Chile in sector related with lithium applications.
- Joint Venture with a state company.

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