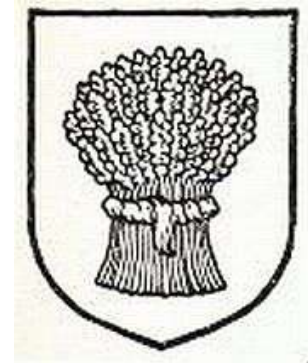


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Thinkpiece

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Argentina & China Energy Transition: A Marriage of Convenience

November 2024

Argentina & China

Energy Transition: A Marriage of Convenience

- + China has provided a major impetus to development of the Argentine lithium industry
- + The Milei government staged a dramatic withdrawal from COP29 in Baku to show its contempt for these climate processes
- + Chile has self-harmed in the Lithium space, thwarting any efforts by the Chinese to gain a foothold there, which in turn has played to Argentina's benefit
- + The uncharacteristic *laissez faire* approach of Kirchnerite governments towards mining has carried over into the libertarian regime of Javier Milei
- + Spodumene miners, the world over, are floundering with high costs of development and extraction and have been the first to be forced to shut down, go on care & maintenance or go bankrupt
- + While bad for China, the move by Eramet to take out its Chinese partner at Centenario/Ratones creates a close nexus between Argentina and the European OEMs
- + The new RIGI (Regime of Investment for Large Projects) scheme of the national government gives financial underpinning to big budget undertakings
- + The Mercosur construct around OEMs operating in the economic area provides a rationale for one, or maybe two, gigafactories in the longer term in either Brazil or Argentina, or both
- ✗ The Lithium price slump has left juniors in the Argentine *salares* largely floundering
- ✗ EVs have little to no traction (or attraction) in Argentina and its neighbours
- ✗ Even some of the Chinese-owned assets in the Argentine parts of the Lithium Triangle have been in go-slow mode due to the perceived glut in supply
- ✗ The ability to scale up production from the existing *salares* projects means that bringing *de novo* projects onstream is not a necessity for Argentina/China projects to grow output

Enabling but not Convinced

The process of the energy transition at a global level is barreling along and Argentina is in the inner circle of enablers of this process, but while Argentina may have a box seat at this event, it is a half-hearted viewer at best and is certainly not predicating policies at the national level upon the pace or progress of this much vaunted transition. Meanwhile, Argentina is seen as a strategic chess piece in this process.

Rock/Paper/Scissors/Brine

In the US retail trade, there is a concept known as the "category killer". This is a retailer or product that is so successful that it dominates its category and forces out less competitive businesses (an example being Toys R' Us, in its heyday). One could liken the position of lithium from brines to a category killer in that the dramatic swing in prices which we have seen in the last twelve months, has shown that lithium-rich brines win on price, ease of production and jurisdiction.

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For those who don't like, or understand, that comparison maybe we could revert to the even more primeval concept of the children's game of rock/paper/scissors/stone, in which one category eliminates some, or all, of the others. Once again, lithium brines are the winners and stone (in this case spodumene/lepidolite/micas) is at a distinct, and potentially fatal, disadvantage. This rings the death knell on many underground projects and those that are in outlandish locations, such as James Bay.

That we feel that brines come out on top is patently clear and the jurisdictions so blessed are Argentina, Chile and Bolivia (with Chinese brines having a home team advantage). Chile comes behind Argentina due to its ingrained *dirigiste* tendencies which have transcended civilian and military administrations and those of Left and Right. The Chilean government just cannot help meddling and particularly picking "champions" in the form of quasi-statal (dare we call them SOEs) such as Codelco and ENAMI, and favoured sons such as Soquimich. It then wields the carrot and stick, with vehemence, ramming foreign interlopers into partnership with these troglodytic organisations.

Then there are the Bolivians with their tendency to back one horse (rather than many) and then deciding to change horses halfway thru the race.

Argentina – the Land of Laissez-Faire?

Laissez-faire economics is not something usually associated with Argentina, though it was the way the country operated for decades before the 1930s crises. Now with a Libertarian president the term is being bandied around again and certainly he has instituted some policies (e.g. open skies) with a view to freeing up some of the closed sectors.

However, one might note that Argentina, on the mining front, has been essentially *laissez-faire* since the 1990s when Menem reformed the mining code and devolved power on this score to the provinces. This is in stark contrast to Chile, as previously noted, where *dirigiste* attitudes towards mining die hard.

In Argentina, under regimes of the Left, Right and centre mining has been left to its own devices and we even saw the paradox of the ultra-interventionist Kirchnerite regimes (under Nestor K, Cristina K and more lately Alberto Fernandez) largely leaving mining to its own devices. This is a situation that has spawned the current Lithium boom, largely at the expense of Chile.

This is not to say that miners were happy with previous regimes (particularly when it came to the currency restrictions and import controls), but the import licensing regimes and which countries were favoured, or not, has not proven to be a hindrance to foreigners participating in the space.

Milei and China

Milei arrived in power with a certain amount of baggage here. The Great Satans were Brazil and China. However, despite the pre-election rhetoric, it's now a case of all quiet on the Eastern Front. The Chinese quickly realised that cheque-book diplomacy did not work. Milei also did not care if Argentina's soya was sold in Chicago or to Peking. This, and the attempt to hold the six billion dollar credit line over the new President's head, were a major failure on the part of China's blackmailing efforts. Milei's attitude was

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that Chinese money was as good as anyone else's, but he wasn't tying himself in knots to appease them.

Even worse, the Chinese had their "space" base in Patagonia and Argentina has no base in China. Who has the whiphand here? Once again, another Chinese failure.

However, in foreign policy terms, China now walks on eggshells when it comes to Argentina.

The Chinese Presence in Argentine Lithium

The Chinese are welcomed, as anyone else is, to the lithium game in Argentina but they have had to learn that they must be good corporate citizens, much as this may go against the grain. This is not Zambia, folks.

A Chinese lithium developer, that shall go unnamed, tried early on to pull a fast one, as they do, on the Argentines by implementing FiFo with a massive overweighting towards Chinese *gastarbeiters*, shipped in by the plane load. They were swiftly informed of the local "content" rules relating to the workforce and were forced to then ship out (immediately) the bulk of the workers they had brought in.

Nevertheless, a number of Chinese companies are heavily invested in Argentina's lithium industry:

Ganfeng

Ganfeng Lithium is positioned in a plethora of lithium projects in Argentina, at various stages along the development curve.

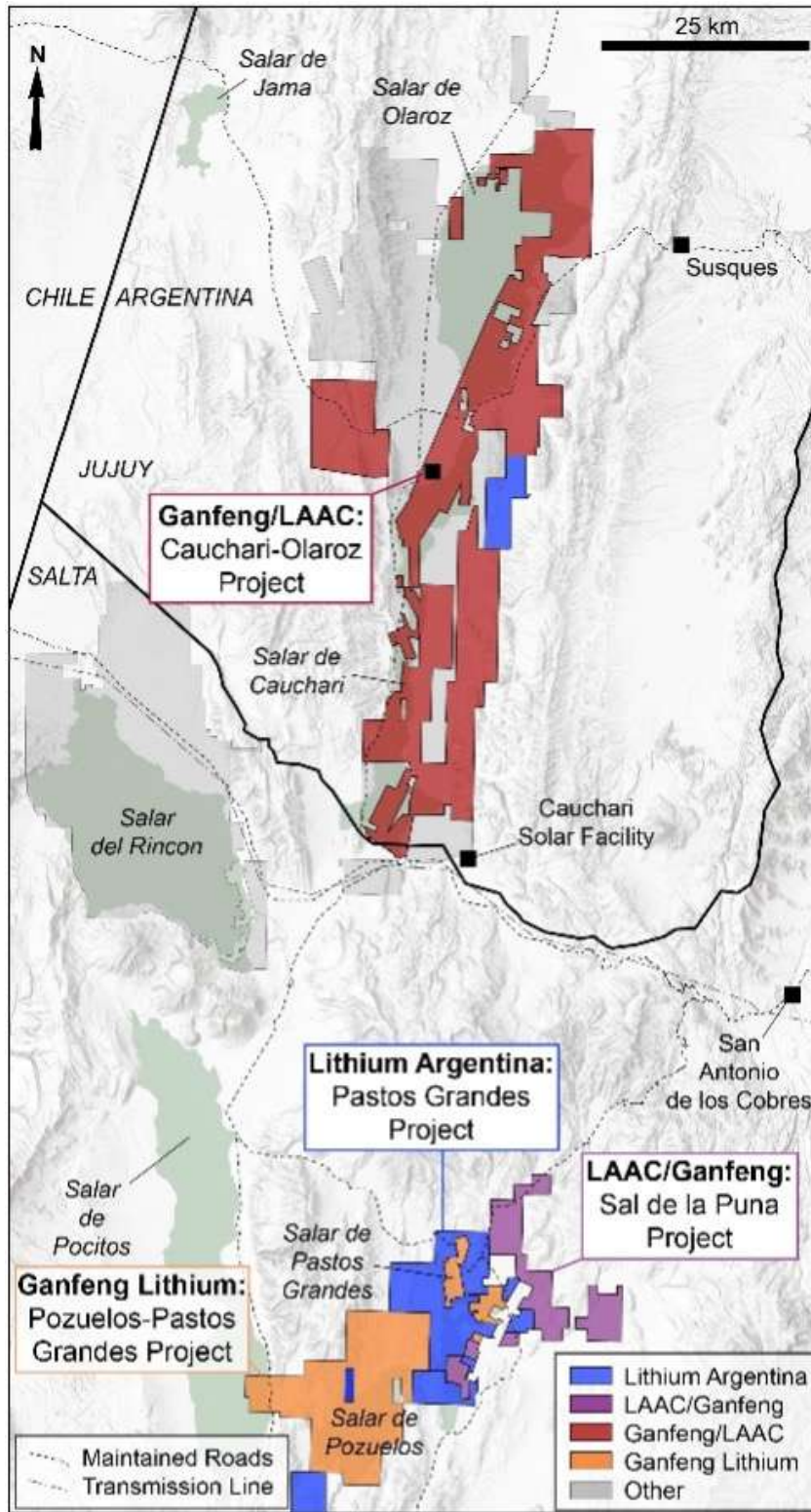
Chief amongst these is the largest stake in Minera Exar and thus ownership of the **Cauchari-Olaroz** lithium mine. Minera Exar is a joint venture between Ganfeng (46.7%), Lithium Argentina (44.8%) and Jujuy Energia y Minería Sociedad del Estado (8.5%). JEMSE is the province's mining entity.

The Cauchari-Olaroz lithium brine project is located in Jujuy Province in the far northwest of Argentina. The project began construction in 2017 and has been operating for several years now.

The Stage 1 capacity was to be 40,000 tpa, with a



Stage 2 expansion of at least 20,000 tpa, with a capex estimated at around \$969mn.



The sprawling holdings of Ganfeng are shown in the map at the left:

The project uses clean solar energy as the main source of lithium energy.

On the preceding page can be seen the associated 300MW solar farm, the largest such facility in Argentina. It is also the world's highest-altitude solar power project.

Construction on the 300MW Cauchari solar project phase one was started in October 2017, with an investment of US\$390mn.

Phase One was inaugurated after the completion of trial run in October 2019. The Cauchari solar farm, with an estimated lifespan of 25 years, is expected to generate approximately 660GWh per annum.

It is further planned for a 200MW expansion in the next phase to bring the total capacity to 500MW.

The electricity project is a JV with the government of Jujuy and is ostensibly part of the Belt & Road Initiative.

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The project was 85% financed through a sovereign debt credit granted by the China Eximbank and 15% through the green bond issued by the province of Jujuy. The Chinese bank provided US\$331.5mn of loans, which are to be repaid in 15 years at an annual interest rate of 3%, while the remaining US\$220mn was to be arranged through a “green bond” issued by the Jujuy provincial government in the international market.

The total project cost, including that of the transmission infrastructure, as well as the planned expansion of the solar park is estimated to be US\$551mn.

Then there is the **Mariana** project, 100% owned by Ganfeng, which is located in the Salar de Llullaillaco, in Salta, some 430 km from the provincial capital. From the city of Salta, it takes some 8-10 hours to reach the site, which lies 95 km from the nearest town, Tolar Grande, at 3,750 masl.

In June 2021, the Mining Secretariat of the province of Salta approved the Environmental Impact Study.

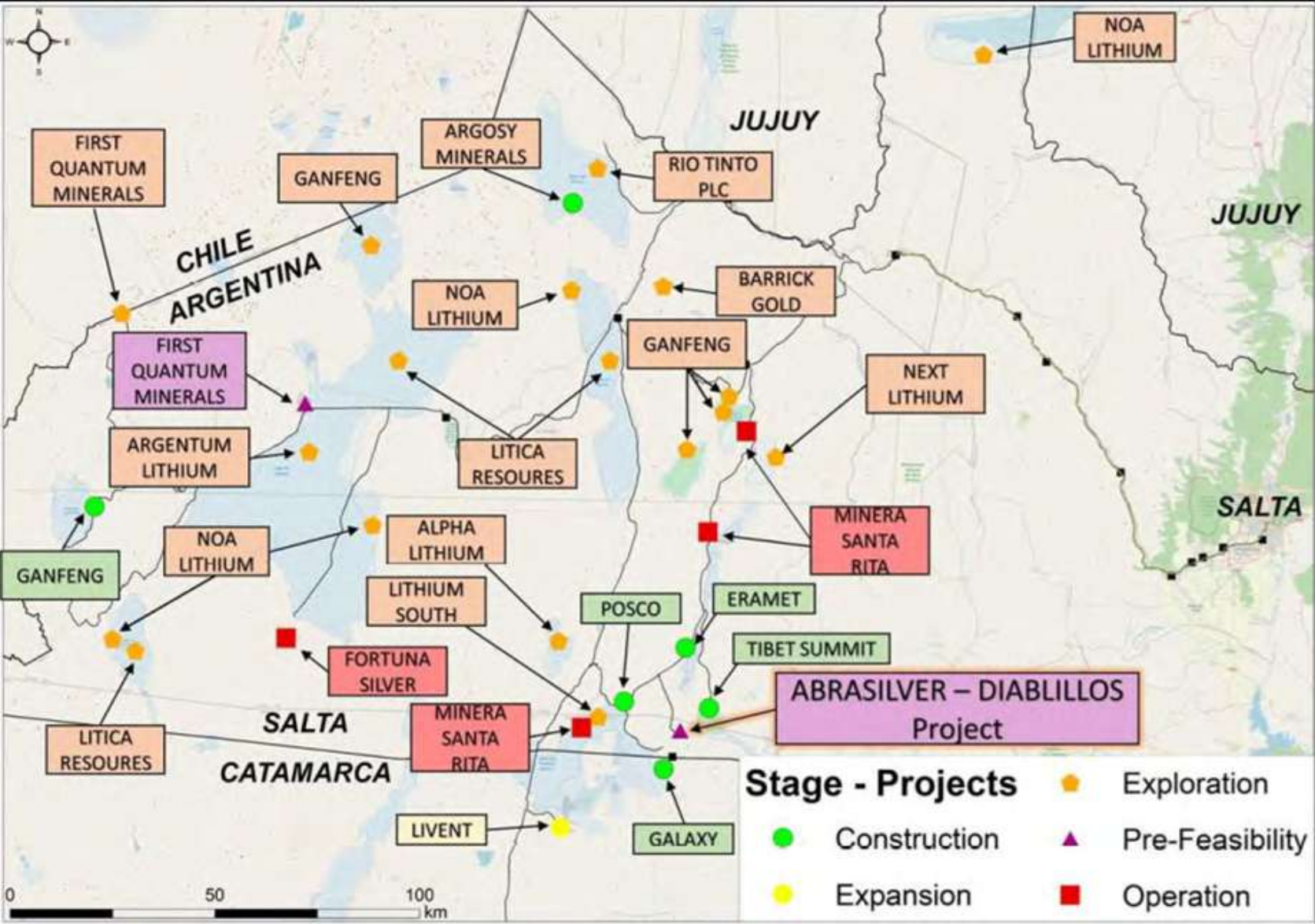
Construction began in June of 2022 with Litio Minera Argentina S.A., a Ganfeng subsidiary, leading the project. In mid-2024, representatives of Ganfeng Lithium confirmed to the Governor of Salta Gustavo Sáenz that the Mariana project would start producing in 2024. Output is projected to be ~20,000 tons LCE per annum. The Government of Salta had stated that Ganfeng Lithium announced that the operational phase of the Mariana project began in January 2023. Numbers differ by report, but the investment here is said to be around US\$600mn with an estimated 1,300 direct and indirect jobs created during the construction phase.

In 2022, work began to build industrial facilities to complete the lithium chloride production process at the town of General Güemes, located in the center of Salta province. The company is building its own railway station to transport brine from the site in the Llullaillaco salt flats to the industrial plant.

The Mariana project will be exclusively supplied by power provided by an off-grid solar farm, producing 120 MW from solar panels with 288 MWp of battery storage. The plan is to expand capacity to 150 MW in solar panels, and 360 MWp in battery storage, exclusively manufactured by Ganfeng.

In March 2024, Ganfeng acquired a 15% stake in the **Pastos Grandes** project for US\$70mn from Lithium Americas (Argentina) Corp. (TSX/NYSE: LAAC). This is an advanced stage lithium brine project acquired by the LAAC in early 2022 via its acquisition of Millennial Lithium Inc. The project is in the same basin as the Sal de la Puna project, adjacent to Ganfeng’s Pozuelos-Pastos Grandes project and 100 km from the operating Caucharí-Olaroz project jointly owned and operated by Lithium Argentina and Ganfeng Lithium.

The Pastos Grandes deal was announced on March 5th of 2024 and consisted of a definitive agreement to acquire \$70 million in newly issued shares of Proyecto Pastos Grandes S.A., LAAC’s indirect wholly owned Argentine subsidiary, holding the Pastos Grandes project, as mentioned this represented an approximate 15% interest in PGC and the project.



Ganfeng Lithium, with Lithium Argentina, has been preparing a regional development plan for the Pastos Grandes Basin and PPG, which was expected to be finalized by the end of 2024.

Technical collaboration was said to be ongoing to explore benefits of Ganfeng's direct lithium extraction (DLE) technology to complement the existing conventional solar evaporation process at Pastos Grandes.

At the time LAAC stated that the offtake rights for PGCo remained uncommitted.

Zijin

Zijin owns the Tres Quebradas lithium mine in the province of Catamarca.

The back story to this is that the Tres Quebradas (3Q) project was owned by the TSX-listed Neo Lithium Corp., which Zijin acquired for about US\$719.6mn in January of 2022. The resource is said to be 8.54mn tonnes of lithium carbonate (LCE) at a concentration of 624 mg/L. Lithium Royalty Corp (that holds a royalty over the project) reported last year that according to the last publicly available Feasibility Study (FS) on the asset, the Proven and Probable Mineral Reserve stood at 1.671mn tonnes LCE, at a grade of 786 mg/L lithium using a 400mg/L lithium cut-off. Proven and Probable Reserves represented 31% of the Measured and Indicated Resource.

In February of 2022, Reuters reported that Zijin Mining Group Co. Ltd., through its subsidiary Liex, intended to construct a US\$380mn lithium carbonate plant at the Tres Quebradas lithium project.

According to Zijin's website, Phase 1 of the 3Q project, which has a production capacity of 20,000 tonnes per annum of battery-grade lithium carbonate, has been completed. Phase 2, with a production capacity of 30,000 tonnes of battery-grade lithium carbonate per annum, is under construction. After Phase 1 and 2 reach nameplate capacity, the project will have an annual capacity of 40,000 to 60,000 tonnes of LCE.

At one point it was said that Zijin was courting YPF, Argentina's state-owned energy giant with a view to building a lithium-ion battery cathode plant in Catamarca.

Tianqi & YPF

That then brings us to the other 800lb panda in the lithium space, Tianqi. Our research has failed to turn up any other investment by Tianqi in Lithium in Argentina, leading us to wonder if a private carve up of Argentine/Chilean lithium majors into spheres of interest has been effected.

It too was courting YPF, but this was back in 2022. In August of that year the two companies signed an industrial supply chain collaboration agreement. Whether YPF, under the Milei regime, would be so cuddly is not clear. YPF is hell bent on being commercial these days.

Tibet Summit

Tibet Summit Resources is one of the stealth Lithium performers amongst the Chinese players, as the

Hong Kong-listed entity is not one of the hitherto high-profile names in the Chinese lithium push, internationally. In late December of 2021 it started the construction of its lithium carbonate project with a proposed capacity of 50,000 mt/year.

The project is under construction at the *Sal de los Angeles* project (SDLA) on the Salar de Diablillos in Salta province. We visited this *salar* on our mine trip to the altiplano of Salta in June of 2023. The note on that trip is here.

The SDLA project is located next to the precious & base metals project of Abra Silver. Indeed, Abra's concession actually covers a sliver of the same alar that Tibet Summit plan to exploit. Our Initiation on Abra Silver is here.

The NI 43-101 resource estimate, prepared by FloSolutions for original owner Lithium X, shows an Indicated and Measured component of 307,535 tonnes of lithium at an average grade of 501 milligrams per litre (mg/l) (for contained 1,636,086 tonnes of lithium carbonate equivalent (LCE) and 3,393,647 tonnes of potassium at an average grade of 5,512 mg/l (for contained 6,481,865 tonnes of potash (KCl) equivalent). The resource estimate also established an Inferred resource of 77,464 tonnes of lithium at 356 mg/l (for contained 412,108 tonnes of LCE) and 811,472 tonnes of potassium at 3,739 mg/l (contained 1,549,912 tonnes of KCl equivalent).

The project has a planned annual production capacity of 2,500 mt of lithium carbonate. Phase I of the project was originally expected to be put into operation by the end of 2022, and the nameplate capacity is reportedly 27,500 mt. However, a recent conversation with a neighbouring (non-lithium) mining project indicated that they saw minimal signs of action at Tibet Summit's project.

In addition to the SDLA project, Tibet Summit Resources invested in the Arizaro project, also in Salta, which consists of 33,846 hectares covering parts of the western and eastern portions of the Salar de Arizaro.

Centenario/Ratones – A Major Setback

However, all has not been plain-sailing as China faced a major set-back in late October when Eramet (the French mining giant) the owner of Eramine, announced it would repurchase that the entire minority stake (49.9%) of the Chinese group Tsingshan in the Centenario/Ratones project. The buyback operation was valued at US\$699mn.

After the commissioning of a pilot plant at the end of 2019, Eramine partnered with Tsingshan for the final construction of the plant in 2021. The backstory here is that Eramet (and France) wanted to put in an extra \$600mn (around 3 years ago) and the administration of the time, Alberto Fernandez, blocked it, forcing Eramet into the arms of the Chinese.

Now, the French group have decided to allocate capital to recover full ownership in the project and fully control the ongoing development.

Production was inaugurated at the beginning of July after an investment in the processing plant of around US\$800mn.

The project, which operates utilizing a DLE technology, has a nominal capacity of 24 kt-LCE per annum of battery grade material. The firm expects to reach nearly four thousand tons of LCE by the end of the year, while by 2025, towards the end of its growth curve, it estimates that the figure will climb to 24,000 tons of LCE per annum. The plant has a projected life of 40 years.

Clearly, there must have been some sort of get-out (or rather buyback) clause and now the French have exercised it. This is the largest forced retreat by the Chinese in the Lithium space anywhere. It is notable that the transaction was not propelled by any government action, but rather by the absence thereof.

The implication here is that production that was entirely, or preponderantly, heading to China will almost certainly be heading to OEMs in the EU, making Argentina probably the largest source of Lithium for the European market.

China's investment in Argentina's lithium industry has helped cement its dominance in the global lithium market. In 2023, 43% of Argentina's lithium exports went to China, while 11% went to the US.

It is interesting to note that hot on the heels of the Eramet deal, Macron is beating a path to Argentina's door and Milei is limiting his trip to visit Trump so he can be back to meet Macron.

Energy Transition – What Transition?

If one goes to the website www.electromaps.com and searches for charging points in the City of Buenos Aires (the inner part of the conurbation, where three million of the twelve million live) one comes back with the answer "three". This may shock and surprise outsiders but was no great revelation to us. One never sees EVs on the streets of Buenos Aires, though there may be some.

To put this in perspective, as of December 2023, over 17.7 million vehicles were duly authorized to circulate in Argentina, with a population of around 46mn.

We sense, in the Argentine middle and upper classes, zero sentiment of political correctness, wokeness and scarcely any greenness. Saying one has an EV in Buenos Aires would be seen as the first sign of madness, not virtue. This is a similar situation across most of the Global South (not that Argentines regard themselves as in that category). The reality is that, apart from East Asia, EVs (and BEVs) are scant in economies where there is little, to no, charging infrastructure.

The reasons are many and various but cost of purchase, range anxiety, absence of "mandates" (e.g. 2030) for ICE phaseout and the bias towards Mercosur-made vehicles (in Argentina's case) are some of the main ones. Over and beyond that is the chicken & egg issue of a lack of charging points, making it very difficult in a city of apartment blocks (largely without associated parking) for individuals to own automobiles that need to be plugged in, if there is nowhere to plug them in.

With such public disinterest, the local producers of automobiles (which are all the global household names) are not gearing up to produce EVs, or even part of the value-chain, despite some talk of battery plants. Again, a chicken & egg issue arises.

Battery Plants

One of the challenges for interlopers to the lithium space in Chile is that government's stated desire that Chilean lithium be upgraded in-country. This has not happened before across the many decades of dominance by Chilean production. New players do not see why they should do this when it is not an obligation enforced upon legacy lithium producers. We suspect the measure was in some way fishing for Japanese participation in new developments, which is something that has not been seen anywhere around the world.

Therein lies the challenge for Argentina (and Brazil). Argentina is part of a vertically (and horizontally) integrated automobile industry, with Brazil, across the Mercosur trade bloc. The logical next step for Argentina is to force the issue on more value-added from the lithium production chain remaining in country. This would run counter to the *laissez-faire* attitude taken thus far to all beneficiation of mined products. Should a gigafactory be in Argentina or in Brazil? Brazil has the population advantage, but arguably Argentina's lithium production is bigger, and always will be, as Brazil has only a few spodumene projects, of which only one is advanced.

Argentina could thus justifiably argue for any gigafactory to be inside Argentina and service Mercosur's auto industry from there (if EVs ever get momentum in the bloc). The new RIGI (Regime for Large Investments) scheme of Milei, for projects over US\$200mn in capex may be applied to some such stratagem. But do not expect *dirigiste* policies on this front.

Then again, the first foreign battery maker that sets up in Argentina, claiming to bring vertically integrated value-added to the Argentine brine output could be the beneficiary of "first-in, best-dressed".

This is where China may need to break with its obsession with "home-grown" batteries. In 2022, in an interesting development, it was announced that the Chinese battery cell manufacturer and Volkswagen partner, Gotion High-Tech, had signed an agreement to build a lithium carbonate plant in the Perico free trade zone in the far northern province of Jujuy (one of the three "lithium provinces"). Eventually, the material would be processed into battery cells "made in Argentina".

The agreement with provincial-owned mining company Jujuy Energía y Minería Sociedad del Estado (JEMSE) provided for the establishment of a joint venture, provisionally named Gotion Jujuy Mining. The initial plan is for an annual capacity of 10,000 tonnes of lithium carbonate, with the possibility of expanding by a further 50,000 tonnes based on market demand.

Rather confusingly, there was also a plan for the production of lithium batteries in Santiago del Estero, under a consortium formed by Chinese companies Contemporary Amperex Technology Company Co. Ltd

(CATL), Tianqi Lithium, and Gotion High-Tech. Is Gotion flirting with as many provinces as it can?

There were also suggestions in recent years that Chinese automaker Chery, planned to produce around 50,000 units per year and Radio Mitre reported that, "there is a bid between municipalities and provinces" for keeping the investment, although everything seems to indicate that it will settle in the province of Santa Fe. Time will tell.

Conclusion

Argentina and China seem to be joined at the hip on the energy transition with China eager and Argentina somewhat *blasé*. Despite this, things are moving forward, and swiftly. However, the Chinese are not the only game in town and the new administration of Javier Milei does not want to repeat the somewhat slavish attention paid by previous Kirchnerite regimes towards the Asian nation. In the Argentina of Javier Milei, the policy of *laissez-faire* rules, and at least this is something the Chinese can deal with. It's a more level playing field than they have found in Chile and less "complex" than they have found in dealing with Bolivian political mood swings.

For Argentina, Chinese money is as good as anyone else's but not necessarily better than anyone else's. The country will no longer be dictated to, but neither is it putting stones in the road.

With Western OEMs going flaccid in their love affair with EVs, there is not much lobbying power being devoted to turning Latin America into the new frontier for EVs, rather it looks, like Africa, to be the one of the last bastions of the ICE.

Important disclosures

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