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Securing the Soda Ash–Lithium Supply Chain into Argentina (Atlantic vs. Pacific Logistics Corridors)

1. Executive Summary

Argentina's Lithium Triangle, and Salta province in particular, has become one of the most important sources of lithium supply globally. Argentina alone holds roughly 20% of global lithium resources[1], and the region is moving from development into full-scale production. That expansion creates a two-way freight problem at scale: producers must bring soda ash in to process the lithium and then carry lithium carbonate out as regional output climbs toward a production ramp that industry specialists expect to accelerate from around 2028. The imbalance is structural rather than incidental: converting brine to battery-grade lithium carbonate consumes roughly twice as much soda ash by weight as the lithium carbonate it produces.

Historically, this trade has moved almost exclusively through the Pacific, via Antofagasta, Chile, a gateway shaped by its proximity to Asian soda ash supply and by decades of established trade. An Atlantic alternative is now emerging, and our research shows it carries structural and sustainable cost advantages: a shorter ocean route to and from the two established natural soda ash-producing regions (United States and Turkey), and a new port-rail-mine network anchored on a deepwater terminal at Timbúes, Argentina, that offers the prospect of materially reducing the high cost of the inland logistics leg. On our estimates, for duty-paying buyers US-origin supply via Timbúes lands at ~$341/t today versus ~$364/t for Chinese material via Antofagasta (duty included); for duty-exempt RIGI buyers the two are near parity. Once Belgrano rail is upgraded, US-origin supply falls to ~$306/t, the lowest delivered cost in every buyer segment.

2. The Lithium Demand Driver

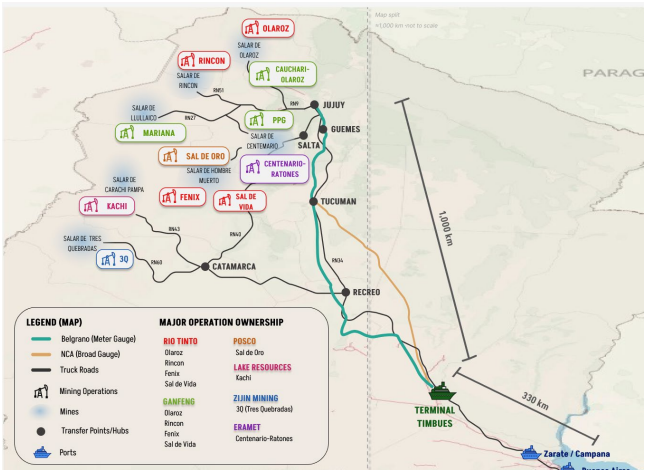
The demand underlying this corridor originates in lithium. Soda ash is the principal reagent for the conversion of lithium brine concentrate into battery-grade lithium carbonate (Li_2CO_3), and the process consumes approximately two tonnes of soda ash for each tonne of lithium carbonate produced. As Argentina's Puna region, encompassing Jujuy, Salta, and Catamarca, establishes itself among the fastest-growing lithium-carbonate regions globally, that two-to-one ratio translates directly into a substantial, structural, and expanding inbound requirement for soda ash.

The scale of that requirement is considerable. Based on our conversations with the Rincón Logistics Group[2], lithium production should create run-rate demand for approximately 1.5 million tonnes per annum of soda ash by 2030 as currently established projects advance through their expansion phases. Because demand is still at a nascent stage, there is an opportunity to secure the corridor in advance of the new volumes rather than compete for an existing flow, which is the phase in which durable infrastructure positions are established.

3. Understanding Soda Ash

Soda ash, or sodium carbonate (Na_2CO_3), is among the world's essential industrial chemicals. It is a principal input to glass and detergent manufacture, it supports a broad range of chemical processes, and it serves, increasingly, as the primary reagent in the conversion of lithium brine into battery-grade lithium carbonate.

Soda ash is produced by two methods. Natural soda ash is mined from trona ore and refined; synthetic soda ash is manufactured by the ammonia-soda, or Solvay, process from salt brine and limestone, with ammonia recycled through the process. Over the past two decades, global supply growth has centered in Asia and been largely synthetic. China built vast domestic synthetic capacity sited close to its own glass and chemicals demand and became the world's



The Lithium Corridor

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largest soda ash producer, even as large natural trona deposits capable of undercutting synthetic production costs existed in only a small number of locations worldwide.

That picture has been steadily inverting. Natural soda ash, mined at scale principally in the Green River Basin of Wyoming and in Turkey, costs roughly half as much to produce as synthetic material. Natural soda ash also carries a durable carbon advantage, emitting roughly half the CO_2 per tonne of synthetic, and in some comparisons less.[3] The gap comes from chemistry: trona already contains the carbonate, so natural production avoids the limestone calcination at the heart of the Solvay process. As US and Turkish natural producers have scaled, they have pulled the global cost curve down and displaced synthetic material at the margin, anchoring the market on a cost basis that Asian synthetic supply increasingly struggles to match.

What has constrained natural producers from fully capturing demand in fast-growing markets like Salta has not been production economics but logistics. US supply has historically reached South American lithium demand through the Pacific, via Portland and Antofagasta, a circuitous and costly route relative to the shorter Atlantic alternative, while Turkish supply has lacked an efficient Atlantic gateway into the region. That constraint is now loosening. Infrastructure investment is opening more direct Atlantic corridors from the US Gulf and Turkey. Paired with improving inland rail connectivity, natural soda ash, once landed, is increasingly competitive on a delivered-cost basis in precisely the markets where demand is growing fastest, such as the lithium provinces of Northwest Argentina (NOA).

4. Soda Ash Supply: The United States, Turkey and China

Global production in 2025 was approximately 68–70 million tonnes. Three supply blocs dominate the global soda ash market: China (54%), the United States (17%) and Turkey (8%), together accounting for 79%. How each produces, and how each competes, frames the corridor opportunity.

The United States and Turkey are the leading producers of natural soda ash, refined from mined trona ore. US production is concentrated in the Green River Basin of southwestern Wyoming, which contains the world's largest known trona deposit[1]. Four major industry players operate there: Şişecam, WE Soda, Solvay and Tata. Together they produced approximately 12.0 million tonnes in 2025, and announced expansion projects suggest the US could expand its nameplate capacity substantially through 2030. About 58% of US output is exported, which gives producers a standing incentive to develop new demand channels for that capacity. South American lithium producers therefore represent a material new outlet. WE Soda and Şişecam, both Turkish-rooted groups, now control two of the four Wyoming operations, commercially linking export interests in Turkey and the US.

China's soda ash production has historically been synthetic, manufactured by the Solvay process from salt brine and limestone. Synthetic production is materially more costly and more carbon-intensive than natural production[3]. With the global market currently oversupplied, Chinese exporters are selling at or below full cost, and Chinese FOB prices currently sit below US and Turkish levels. In South America's coastal markets, Chinese material competes aggressively on price. The natural producers' cost advantage does not, however, translate into a lower price today; it shows up instead as margin and staying power, as they remain profitable at prices that squeeze Chinese Solvay-process plants. Reacting to this cost disadvantage, China has pursued a rapid build-out of natural soda ash capacity, and its natural capacity could rival US output later this decade. Incremental supply is therefore arriving from the United States and China at the same time. As a result, the delivered-cost contest into the NOA may be decided by logistics (ocean freight, the landed leg and rail) and by tariff treatment, as set out in Section 5.

In our view, the strategic conclusion is direct. Global soda ash supply is expanding and increasingly contested. Chinese pricing also carries volatility risk: Chinese export prices have a history of sharp spikes, and a policy intervention could push FOB Qingdao prices to $220–270 per tonne within 30–60 days[4]. That exposure argues for securing supply on long-term contracts with a reliable origin, rather than buying on spot price alone. Natural producers in the United States and Turkey hold a durable cost advantage and can offer long-term supply security. A competitive Atlantic corridor is what converts that advantage into a delivered-price position in Argentina's lithium provinces.

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5. The Opposing Logistical Corridors into Northwest Argentina

For soda ash destined for the lithium provinces of northwestern Argentina, the opposing Pacific and Atlantic corridors have dynamically evolving elements that affect their comparative cost structures.

The Pacific Corridor

The incumbent gateway is Pacific: ocean freight to Antofagasta, Chile, followed by a landed crossing eastward across the Andes by road into the NOA. Approximately 96% of the region's soda ash currently moves this way[5], dominated by Asian suppliers. The lane is mature and well understood.

Key limitations on this route versus the Atlantic are the longer ocean journey for Asian suppliers to Antofagasta and constraints on the landed leg from that port to the mining regions. Product must cross the Andes on high-altitude mountain roads, where truck payloads are restricted to 26 tonnes per truck, the passes are subject to seasonal closure, and every shipment clears at an international border. A narrow-gauge rail line via Socompa (Ramal C14) also links Salta to Antofagasta, but it plays a limited role in reagent flows today and faces the same altitude and border constraints. The arrangement is adequate at prevailing volumes, but its constraints are structural rather than operational, and they become significantly more consequential as lithium output scales.

The Atlantic Corridor

Ocean transit times to Argentina from US and Turkish suppliers are shorter than the Pacific route used by Asian competitors shipping through Antofagasta. Once landed, the same cargoes traveling from ports in Argentina also have a moderate cost advantage over the landed leg through the Andes from Chile to the mining region. Logistics representatives from mining companies and regional consultants attribute this to payload. The Pacific gateway moves product inland primarily by road, while the Atlantic gateway combines rail and truck, and a bitrén configuration on the Atlantic side carries approximately 52 tonnes in a single movement. Roughly double the payload per trip, and correspondingly fewer movements for every tonne delivered, offers attractive economics at scale. For US suppliers, however, that landed-cost advantage was not enough on its own to shift exports from the Pacific to the Atlantic side: Union Pacific's high rail rates (add about 10% to FOB) from the US trona mines to the Gulf terminals have kept the Atlantic a secondary outlet. But the Atlantic route is poised to offer a more scalable and economical option. Argentina is concessioning the Belgrano Cargas rail network, with rail infrastructure investment eligible for RIGI benefits, to integrate rail cargoes from the Salta corridor directly with a deepwater port: Terminal Timbúes, a RIGI-approved project scheduled to open in Q4 2027. Once the upgrade is complete, we estimate it could eventually cut the cost of the port-to-mine landed leg by close to half[11]. That is not a marginal refinement of an already-favorable position; it is a step-change that resets the economics of the entire supply chain, giving the Atlantic corridor a scalable cost advantage that the Andean crossing, constrained at current capacity and exposed to seasonal closure, cannot match. Bids for the Belgrano concession are due in November 2026[12], and as with any infrastructure project there is execution risk and the uncertainty of delays. But for Atlantic-facing suppliers looking to disintermediate their Asian peers, the risk/reward appears skewed to the upside.

Delivered Cost of Soda Ash into NOA Lithium Provinces (USD/ t)

Like-for-like FOB load-port basis: US-origin via Timbúes is competitive today and cheapest once Belgrano rail is upgraded

COST LINE (USD / t)	China →Antofagasta	Turkey →Timbúes	US-Galveston →Timbúes (today)	US-Galveston →Timbúes (post-rail, 2030s)[12]
FOB at load port[6–8]	$175	$197	$195	$195
Ocean freight[9]	$43	$32	$27	$27
Port, storage & bagging[10]	$35	$49	$49	$49
LatAm land corridor[11]	$85	$70	$70	$35
TOTAL DELIVERED	**$338**	**$348**	**$341**	**$306**
Memo: import duty[13]	+$26	+$27	$0	$0
Delivered incl. duty[13]	**$364**	**$375**	**$341**	**$306**

Note: Directional estimates based on third-party data and conversations with industry experts. Excludes demurrage, insurance, financing and taxes other than import duty. Post-rail is a 2030s estimate, as rail works phase in.

Import duties will also shape competitiveness as lithium-triangle demand scales. On our understanding of Mercosur tariffs, soda ash from outside Mercosur pays 9% import duty plus a 3% statistics fee on customs value, and Chinese supply routed through Antofagasta should expect to keep paying that 12% on sales to duty-paying buyers. US-origin supply is

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positioned to be exempted. Under the US–Argentina Agreement on Reciprocal Trade and Investment (ARTI), once ratified by Argentina's Congress13, US anhydrous soda ash enters duty-free on entry into force, with the statistics fee removed within three years. Turkish shippers, with no treaty preference, can use bonded storage at Terminal Timbúes with sale in bond to deliver duty-free to buyers holding status under Argentina's large-investment incentive regime (RIGI), such as Rincón, which imports from any origin without duty as importer of record. That RIGI route is open to every origin, Chinese supply included, so it does not by itself separate suppliers. Turkey's case therefore rests on this bonded RIGI channel, competing on supply security and carbon rather than price. The decisive difference is ARTI: US product is the only imported supply positioned to enter duty-free across both buyer segments, RIGI anchor accounts and the broader duty-paid market. Domestic producer ALPAT also sells duty-free, but its Solvay process carries a structural cost handicap against trona, and its capacity is modest relative to projected lithium demand. As new projects without RIGI coverage come online, Turkish and Chinese supply alike carry a 12% penalty in that growing segment. On balance, Timbúes clients shipping US product hold the strongest position.

A strategic dimension accompanies the commercial one, and it argues for urgency. Natural US- and Turkish-origin soda ash currently holds a genuine cost and carbon advantage over Chinese synthetic supply[3], but that gap is not fixed. Asian producers have registered the competitive threat and are themselves pivoting toward natural production, moving to close the very advantage that today favors Atlantic-origin material. A dedicated Atlantic corridor is the means by which US and Turkish suppliers convert that advantage into a durable market position before it narrows, securing the integrated route into Salta while natural producers still hold the edge rather than contesting it later on equal footing.

6. Terminal Timbúes: Anchor to an Integrated Supply Chain Opportunity

The advantages of the Atlantic corridor converge at a single point of execution: Terminal Timbúes. As the northernmost Panamax-capable terminal on the Paraná, ~467 km upriver from Buenos Aires, it acts as the primary gateway between ocean-going vessels up to Panamax size and the Belgrano national rail network, which provides a direct link to the Salta



Terminal Timbúes Site Rendering, Santa Fe, Argentina (Opening Q4 2027)

region. Argentina's infrastructure development programs align with the integration of commodity flows at the ocean-to-rail nexus that Terminal Timbúes provides. Storage on site, bonded warehousing at the point of discharge (contractable annually) and the ability to manage cargo transfers and demurrage risk at one site consolidate logistical complexity under one roof rather than leaving it to a succession of independent operators. That is what elevates the Atlantic corridor beyond a marginally cheaper alternative: it positions Timbúes as a genuinely integrated, end-to-end logistics solution, one built to scale with the region's demand rather than simply keep pace with it.

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The return leg of the rail corridor to Terminal Timbúes carries its own logic. The same rail and river infrastructure that brings reagents and inputs inland can carry lithium carbonate and other finished products outbound, deepening the terminal's integration with the lithium producers it serves. That backhaul is reinforced by a much larger and more established flow: grain. The Bolsa de Comercio de Rosario estimates that 10–11 million tonnes of grain move each year from Argentina's northern provinces to the Gran Rosario ports and processing hub, nearly 80% of it by truck[14]. Converting even part of that volume to rail would give the Timbúes link a dependable base of return cargo and materially strengthen its economics. The terminal is being built for exactly this mix. On a 186-hectare site, the fertilizer and dry bulk terminal (480,000 tonnes of storage) opens first, in Q4 2027, followed by an agro-bulk terminal able to receive about 1,000 trucks a day, store more than 100,000 tonnes and load vessels at 1,500 tonnes per hour, and a 120,000 m^3 liquids terminal. Together these facilities are sized for export growth from Argentina's northeast and northwest alongside the region's critical-mineral flows.

7. Summary

Neither corridor will disappear. The Pacific route is established, serviceable at current volumes, and will remain part of how soda ash reaches the NOA for years to come. Miners have no reason to abandon a working channel outright, and a prudent buyer will want more than one. But the Atlantic corridor carries a weight the Pacific route does not: we believe it is the infrastructure through which the United States and its allied natural producers can build a genuinely integrated, bidirectional lithium supply chain, with soda ash moving in and lithium carbonate moving out, on terms that do not depend on Asian-origin supply. That alignment of interest is not incidental. US soda ash producers are actively growing export capacity in search of new demand, battery-grade lithium demand is expanding in step with Western electrification and reshoring policy, and both sides of that equation need the same thing: a competitive, scalable, and secure route into Argentina's lithium basin. Terminal Timbúes is where that route gets built. Securing it now, while natural producers hold the cost edge and while the corridor is still being defined rather than contested, is what converts a commercial logistics opportunity into a durable strategic position.

What the Atlantic corridor offers, ultimately, is not just a lower-cost molecule but a cleaner, more reliable, and fully integrated route into one of the world's fastest-growing reagent markets, together with the opportunity to establish that position in advance of the demand and ahead of the competitive response.

Sources

1) *USGS Mineral Commodity Summaries 2026.*
2) *Conversation with major lithium mining logistics group, 2026.*
3) *C&EN, "Can synthetic soda ash survive?" (updated Aug 2024): Solvay process generates ~1 t CO_2 per tonne of soda ash; trona-based production emits 0.3–0.7 t, depending on ore quality (Accenture).*
4) *ChemtradeAsia, Soda Ash Light Price Index 2026 (Apr 2026): policy-intervention scenario, FOB Qingdao $220–270/t within 30–60 days.*
5) *Interview with logistics specialist formerly with Rio Tinto's Rincón project, 2026.*
6) *China: FOB Qingdao base case $160–185/t for Q2–Q3 2026 (ChemtradeAsia citing Intratec); $187/t FOB May 2025 (Chemical Market Analytics).*
7) *Turkey: FOB ~$195–200/t (Intratec). Inland haul to port is embedded in FOB.*
8) *US: Intratec US export transaction price FOB $180–188/t (late 2025) plus a Gulf-loading premium; range $185–205.*
9) *Indicative, scaled to voyage distance (US Gulf ~6,000 nm vs. Turkey ~7,000+ nm to the River Plate); China $43 Xtellus estimate.*
10) *Atlantic: AlphaSights Logistics Consultants, indicative Paraná River handling rates, May 2026 ($19.50 discharge + $1.50 storage + $28.75 bagging/big bags). Antofagasta $35 Xtellus estimate for discharge, storage and handling of breakbulk cargo; Asian supply arrives pre-bagged, so bagging is carried in FOB rather than at port.*
11) *Atlantic land corridor today $70 (range $70–100), cross-checked to BCR Informativo Semanal (Salta–Gran Rosario freight ~28% of corn price) and Fetra reference tariff. Post-rail $35 is a Xtellus estimate (~50% reduction) based on regional logistics-consultant input. Pacific $85 Xtellus estimate.*
12) *Belgrano Cargas concession tender (Res. 1350/2026): bids due 11 Nov 2026; 50-year term; rail infrastructure works eligible for RIGI; mandatory works in first 5 years within a 10–15 year reconstruction phase. Excludes further upside from bulk hopper delivery (removes ~$29/t bagging).*
13) *12% of CIF, based on our understanding of Mercosur tariffs: common external tariff of 9% on HS 2836.20 plus 3% statistics fee. US $0 reflects ARTI (signed Feb 2026) duty-free treatment of HS 2836.20 at entry into force, assuming ratification by Argentina's Congress; RIGI project exemptions may neutralize duty for qualifying importers. The US $0 excludes the 3% statistics fee (~$7/t on today's CIF), which ARTI phases out within three years of entry into force.*
14) *Bolsa de Comercio de Rosario, Informativo Semanal: grain flows from northern Argentina to Gran Rosario of 10–11 Mt/yr, ~78% by truck and ~20% by rail.*

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