Mining Sector Turns to the Sea: 11 Desalination Projects Worth $8.395 Billion Underway

■ A total of 34 initiatives related to water reuse, extraction, transport, and desalination are currently in various stages of development. At least three plants are set to begin operations by 2027.

Diario Financiero – February 10, 2025
By Patricia Marchetti

Since the launch of Chile's first seawater desalination plants in the early 2000s, the mining sector has been the primary driver of the industry. Despite some diversification, it remains dominant.

Of the 24 industrial-scale desalination plants in the country—each producing over 20 liters per second (l/s) and collectively offering an installed capacity of 10,500 l/s—11 are linked to the mining sector, with 11 more projects currently in various stages of development.

"Currently, 37.2% of the water used in mining comes from non-conventional sources, primarily desalination, and this figure is expected to increase to 70% by 2034," says Alberto Kresse, president of the Desalination and Water Reuse Association (Acades).

Among existing facilities, BHP's Escondida plant in Antofagasta stands out as the largest in the Americas, with a capacity of 3,858 l/s, allowing the company to completely eliminate its use of continental water for operations.

Other notable facilities include three desalination plants operated by Antofagasta Minerals (AMSA), KGHM's plant for Sierra Gorda, Capstone Copper's plant for Mantoverde, Lundin Mining's plant for Minera Candelaria, Teck's plant for Quebrada Blanca 2, and Aguas CAP's plant, which supplies mining operations, human consumption, and agricultural irrigation.

Projects in Development

According to a survey conducted by Acades and the Corporación de Bienes de Capital Fijo (CBC), as of January 2025, there are 34 projects in different stages of development related to water reuse, extraction, transport, and desalination, representing a total investment of $19.054 billion, with a combined water production capacity of 38,864 l/s.

Of these, 11 are mining-related, 11 focus on green hydrogen or ammonia, eight are multipurpose projects, and four are for human consumption.

Orlando Castillo, general manager of CBC, highlights the rapid expansion of the sector, stating that "the number of projects indicates a shift from desalination as a sector-specific solution to a structural alternative in national water management."

Among six new desalination plants under construction, five are linked to the mining industry. Collahuasi and Los Pelambres are building plants associated with capacity expansion and operational improvements.

According to CBC, two key desalination plants are expected to begin operations this year or next: The expansion of the northern desalination plant of Aguas Antofagasta, operated by Grupo EPM, and the Aguas Pacífico desalination plant, the first large-scale multipurpose project in the Valparaíso Region.

The first of these will make Antofagasta the largest city in Latin America to rely entirely on desalinated seawater, says Kresse.

For the 2026–2027 period, additional plants are scheduled to begin operations, including stage 1 of Codelco's Distrito Norte desalination plant, which will supply Codelco's mining operations in Antofagasta; the Enapac desalination plant by AguaSol in Atacama, which will serve human, mining, and agricultural needs.

With these developments, the mining sector is expected to add at least three new desalination plants by 2027.

The survey also highlights two mining-related water extraction and transport projects, with a combined capacity of 2,094 l/s: SQM's Tente en el Aire iodine project and the AMSA's Nueva Centinela water supply system (SIAM).

Additionally, AMSA's Minera Zaldívar life extension desalination plant is currently undergoing environmental evaluation.

Timelines and Water Scarcity Challenges

In just over two decades, Chile has become the leader in desalination in Latin America, followed by Mexico and Peru. However, "it still lags far behind global giants like Saudi Arabia and the UAE, as well as countries like the US and Spain," notes Castillo.

Kresse—whose association Acades has grown from 12 founding companies in 2021 to more than 80 members in 2025—emphasizes that one of the industry’s biggest challenges is that "development timelines do not align with the urgency of ensuring water security."
"Launching a desalination plant can take between eight and ten years due to the complexity of permits and regulations, as well as the discretionary nature of certain evaluation processes," he warns.
He also points out that "paradoxically, pending legislation in Congress could further extend these timelines," and urges lawmakers to focus on incentives and regulatory certainty to increase water availability in regions facing shortages.

Favorable Winds for Investment? 2024 Ends with Increased Activity Among Engineering Consulting Firms

■ The index compiled by AIC showed gains both quarterly and annually, highlighting strong performance in ports, industry, and mining.

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BY CATALINA VERGARA

The year 2024 closed with positive signs for the recovery of investment, which has been one of the pending challenges for Chile's economy.

The Engineering Activity Index (ICON), developed by the Chilean Association of Engineering Consulting Firms (AIC), recorded an 8.9% increase in the fourth quarter of 2024 compared to the previous period and a 24.2% rise compared to the same quarter in 2023.

Tasks commissioned by private entities, which account for 77% of the hours dedicated to project preparation, increased 0.5% compared to July-September and 51.4% year-on-year. These gains were driven by increased activity in pre-investment studies, project management, and detailed engineering.

The pre-investment phase involves research before committing to an investment, project management covers the execution of works, and detailed engineering focuses on refining the project's specifics.

For public sector initiatives, which represent 23% of the measured hours, there was a 3.9% increase compared to the third quarter, but a 23.4% decline compared to the same period in 2023. This drop affected all engineering phases.

Major public-sector clients, such as the Ministry of Public Works (MOP) and Codelco, which together account for 51% of public-sector activity, showed significant increases in project management, with 87.3% and 63.1% growth, respectively.

Performance by phase

According to the report, project management stood out, accounting for 59% of total declared activity in the fourth quarter, noted AIC. It showed increases of 5.4% compared to the third quarter of the previous year and an annual rise of 23.7%, confirming a four-period positive trend.

Activities related to detailed engineering, which represented 18% of the quarter's hours, recorded quarterly expansions for the second consecutive period (+8.7%) and a strong 33.2% annual increase.

The pre-investment engineering phase, which accounted for 23% of the hours between October and December, saw 19.3% quarterly growth and an 11.8% annual rise. In both cases, this represents a reversal of the declines recorded in the previous report.

AIC General Manager Tomás Levrini highlighted as a positive sign that, despite project management representing more than half of consulting firms' activity, there were also advances in pre-investment and detailed engineering.

Leading sectors

When analyzing projects by economic sector, mining remains dominant, accounting for 56% of the hours dedicated to investment initiatives during the last quarter of 2024.

On the other hand, the sector that showed very little activity was urban real estate development, reaching 0.04%.

Compared to the previous quarter, the most significant increases were seen in work aimed at boosting projects in ports (62.7%), industry (39.7%), mining (15.2%), and sanitary infrastructure (11.6%).

From an annual perspective, the highest growth was recorded in the port sector (135.1%), followed by sanitary infrastructure (104.5%), industry (47.2%), and mining (42.2%).

Among the sectors that experienced a decline in activity were urban real estate development, with an annual drop of 89.2%; and urban infrastructure, with a decrease of 48.5% over twelve months.

"The mining sector continues to lead both engineering phases, accounting for more than 50% in both cases, which keeps expectations high for significant development in this key sector of our economy in the coming years," emphasized Levrini.

At the regional level, in October-December 2024, 58% of total demand for engineering services was concentrated in the Antofagasta (23%), Metropolitan (20.6%), and O'Higgins (14.8%) regions.

At the other end, the regions with the lowest activity were Arica and Parinacota, Los Ríos, Magallanes (0.3%), and Aysén (0.1%).

24.2% was the annual variation in the engineering activity index in the fourth quarter of 2024.

Enami Faces a Pivotal Year with 78% Less Debt and Plans to Issue Its First Bond

The state-owned company's financial restructuring will continue this year with a reorganization of its bank loans. This new scenario allows the company to negotiate more effectively with its future partner for the Salares Altoandinos lithium project, which is showing improved resource projections. "The initial estimates are falling short," reveals Enami's Executive Vice President, Iván Mlynarz.

PULSO
By Víctor Guillou

The year 2025 will be a decisive one for the Empresa Nacional de Minería (Enami). Between April and May, the company expects to receive offers from the four shortlisted firms competing to become its financial partner in the Salares Altoandinos lithium project, which is in direct competition with Maricunga, led by Codelco, to become Chile's second-largest lithium brine operation.

The administration, led by Executive Vice President Iván Mlynarz, is also seeking to complete the financial recovery of the state-owned company, even after surpassing the targets set for the previous year.

By mid-2024, Enami's leadership had projected that a $500 million asset sale—the 10% stake in Quebrada Blanca, which was transferred to Codelco for $520 million—would reduce its bank debt to $284 million. However, by the end of 2024, the company had lowered its financial debt to $137 million. Between one year and the next, the figure dropped by $498 million, from the $635 million reported in December 2023, marking a 78% decrease.

Enami is now negotiating with a much lighter debt burden but still needs to continue reducing it. To achieve this, it has outlined three key strategies. The first is a $25 million capital injection included in the 2025 Budget. This is supplemented by another $10 million in direct funding from the Atacama Regional Government. However, for debt restructuring, it will turn to the national market for the first time to issue a bond, which is planned for the first half of the year.

"We are closing out old short-term loans, which were all set for one-year terms. We are now restructuring our debt, with most of it extended to three-year terms, providing stability for the company as it reaches the midpoint of the next government. We will leave the debt issue resolved. The first two years won't see a major burden. Additionally, we are moving forward with issuing a national debt bond, which will allow us to secure lower interest rates," says Mlynarz.

Although the company prefers not to disclose the exact figure, it detailed that the total amount of restructuring is approximately $250 million. "Part of this will be financed through the bond issuance, with an estimated term between 7 and 10 years. Currently, the process of registering lines with the CMF is underway, and the final amount has yet to be determined," they stated.

According to Mlynarz, the debt rotation process will continue until May, significantly reducing financial costs. This will be complemented by positive operational results, which the company expects to continue projecting this year.

"When operational results are positive, there is no need to take on additional debt, and that is very important. We have achieved this through optimizations at our plants. Many of them are now operating profitably, covering their operating costs. In this regard, our goal for the first half of 2025 is to maintain the pace set in the second half of 2024 and make it sustainable moving forward," adds the geologist.

As Enami advances its financial recovery, so does its Salares Altoandinos lithium project. The initiative, for which a reference investment of $1.7 billion is estimated—higher than the previously projected $1.5 billion—has not yet completed the data collection required to define the resources of this critical mineral for electromobility. However, ongoing data collection has been increasing thanks to the results of the 2024 exploration campaigns conducted in the Aguilar and La Isla salt flats.

"The first step is to determine how much lithium exists in the salt flats, and in that regard, we have done quite well. Simply put, the lithium content in the Aguilar salt flat has doubled, as determined by certified specialists. For La Isla salt flat, at least preliminary data also indicate a significant increase. Therefore, the initial estimates are falling short," reveals Mlynarz, emphasizing that this means "we are looking at a much larger project than initially considered."

Thus, if Altoandinos was initially projected to produce around 60,000 tons of lithium carbonate equivalent (LCE) annually, "that could change based on the fact that we have more lithium available." The final figure, still pending a basic engineering study, could rise to between 80,000 and 100,000 tons of LCE. This would position Altoandinos as the second most significant lithium project, competing directly with Maricunga.

"We are going to be in that somewhat futile discussion, which some enjoy, about who will have more lithium: Maricunga or Salares Altoandinos," acknowledges Mlynarz.

Meanwhile, the process of selecting a financial partner continues to move forward. Last week, executives from the Chinese company BYD visited the salt flats. This week, representatives from the French company Eramet (whose subsidiary Eramine acquired around 120,000 hectares in mining rights in the project area in 2023) will conduct site visits, followed by executives from the international company Rio Tinto and the South Korean firm Posco in the last two weeks of February.

The visits are part of an on-site audit—a type of due diligence—of the information Enami has published about the project within the data room made available to companies competing for partnership.

"The four companies that have been selected from those that applied meet the requirements to successfully develop a project of this scale, both in technical aspects and financial backing," says Mlynarz, ruling out any favoritism toward a particular bidder.

Following this, in April, Enami expects to receive offers from Eramet, Rio Tinto, Posco, and BYD regarding both the business model and the investments each could contribute to the project. With that information in hand, in May, the state-owned company will select the winner of the bidding process to establish the public-private partnership.

For this, it will be crucial that the Comptroller General of the Republic approves the Special Lithium Operation Contract (CEOL), a document that the Ministry of Mining has already submitted for the administrative review of the oversight body.

"The Comptroller's Office review times vary, but it typically takes months. We estimate two to three, and if the significance of this instrument is recognized, it could be done in less time. But the timelines align," says Mlynarz about how long they expect to wait for the CEOL.

He concludes with the following reflection: "Without a doubt, Enami's financial recovery allows us to have very different conversations with various partners, whether for major projects like lithium or the smelter we are developing. This is one of the intangible benefits that resulted from our 2024 decisions, and without a doubt, it has enabled us to develop and sustain the exploration campaign at Enami's expense so that the project is not delayed another year. We know that the lithium window is short, and we cannot wait for a partner before taking the necessary steps for a project of this kind."

Analyst Forecasts Lithium Price at $10,400 per Ton:

Oversupply to Keep Lithium Prices Low in First Half of the Year

■ The metal’s value is expected to recover in the second half of 2025 and reach up to $25,000 per ton by 2028.

El Mercurio de Santiago
By Catalina Muñoz-Kappes

Lithium prices will remain under pressure in 2025 as supply continues to outpace demand, according to a study by Benchmark Minerals Intelligence. Despite lower-than-expected electric vehicle production—these vehicles being the main driver of lithium prices—there is still a steady demand for the metal, which is expected to push prices higher in the medium term.

Juan Esteban Fuentes, South America director at Benchmark Minerals Intelligence, explains that "lithium demand is growing at double-digit rates, which is very attractive. This means that there will be a gap between supply and demand in the medium term, which should drive prices up."

The expectation is that the average price of lithium battery chemicals will be $10,400 per ton this year. Lithium supply is projected to grow by 23% in 2025, including contributions from recycling, while demand is expected to increase by 18%. As a result, the oversupply will keep lithium prices under pressure during the first half of 2025. Although a small supply deficit is anticipated in 2026, prices are expected to begin recovering in the second half of 2025, though the annual average price will remain lower than in 2024, according to Benchmark Minerals Intelligence.

Between 2026 and 2028, the market is expected to reach equilibrium, with prices rising in response to a looming supply deficit later in the decade. The projection is that by 2028, lithium will be valued at around $25,000 per ton and will stabilize at approximately $21,000 per ton from 2031 onward.

Electric Vehicle Sales

In 2023, lithium prices dropped due to lower-than-expected electric vehicle sales, along with inventory accumulation and an increase in lithium supply.

"Perhaps the initial predictions were too optimistic, but that doesn't mean fewer electric vehicles will be sold. Growth will slow, but it will continue to increase. We estimate that 21 million electric vehicles will be sold in 2025, compared to 17 million in 2024," Fuentes adds.

However, Fuentes warns that the small size of the lithium industry makes prices highly volatile.

"The industry produces 1.1 to 1.2 million tons, which is very little compared to copper or iron, regardless of price. This makes lithium prices much more volatile. It is a less liquid industry, and prices are not publicly traded—there is no market where lithium prices are updated daily, as transactions are conducted through private contracts," he explains.

Meanwhile, mining company acquisitions in the fourth quarter of 2024 suggest that lithium prices are near their lowest point and will soon rebound.

For example, in October, Australian mining giant Rio Tinto offered $6.7 billion to acquire Arcadium Lithium, becoming the first major diversified miner to enter the lithium sector significantly, according to Benchmark Minerals Intelligence.

This year, the market intelligence firm expects companies to focus on acquiring technology, particularly in direct lithium extraction (DLE).

Long-term projections estimate that lithium prices will stabilize at around $21,000 per ton from 2031 onward.

After the Release of the Latest Public Finance Report:

Experts Warn That the Country's Credit Rating Is at Risk

■ Economists highlight that the projections used to build the 2025 Budget became outdated just months after being approved by Congress.

El Mercurio de Santiago
By N. Birchmeier

The latest Public Finance Report (IFP), released by the Budget Directorate (Dipres) of the Ministry of Finance, introduced several updates regarding the country's fiscal outlook and the government's economic expectations for this year.

Among the key revisions was an increase in the projected structural deficit for 2024, which was adjusted from 2.3% of GDP, as estimated in the third quarter of last year, to 3.2% of GDP. Additionally, economic growth expectations were revised downward, with the 2025 GDP expansion forecast lowered from 2.7% to 2.5%. These new figures differ from the assumptions used to draft the 2025 Budget Law.

Experts argue that the government should continue implementing further adjustments throughout the year.

"Dipres has acknowledged the criticism regarding overestimating fiscal revenues, reducing their forecast from 24.3% of GDP to 23.1% of GDP, but this projection is still high and will likely be adjusted downward in future reports," says economist Jorge Hermann, director of Hermann Consultores.

Hermann estimates that actual fiscal revenues will reach 22.5% of GDP, resulting in an effective deficit of 2.3% of GDP based on current spending levels. "This demonstrates that the 2025 Budget projection became outdated just months after being approved by Congress, and Dipres will have to continue adjusting revenue forecasts downward in upcoming reports," he adds.

"If spending is not adjusted in the future, the country's gross debt will rise to around 45% of GDP in 2025," Hermann warns. According to the government's own projections, public debt is expected to close the year at 42.1% of GDP.

Carolina Grünwald, chief economist at Prudential AGF, believes that growth expectations for 2025 should also be revised downward. Her firm forecasts economic expansion to be around 2% this year. "This results in lower tax revenue, as it is directly tied to economic activity and demand (...) We believe the deficit will be higher than Dipres estimates," she states.

Grünwald expresses particular concern over the rapid increase in public debt, as "in terms of risk classification, Chile's low debt levels are a key factor in maintaining a better credit rating compared to the rest of Latin America."

"I believe the country's credit rating is at risk, or at least its outlook," she asserts.

"There has been damage to the credibility of the fiscal accounts, as the structural deficit target has not been met. It is highly likely that the government will fail to meet the 2025 Budget commitments for the second consecutive year, which jeopardizes Chile's credit rating," Hermann warns.

Parliamentary Perspectives

Senator José García Ruminot (RN) argues that following the latest Public Finance Report, it is "very likely that the government will need to cut spending. However, this presents a significant challenge, especially since ministries and institutions funded by public contributions have already internalized their budgets."

Deputy Miguel Mellado (RN) states that the opposition will "demand in March that we begin joint Budget Committee sessions to review budget execution and actual revenues from the first quarter, ensuring that the necessary adjustments are made to meet agreed-upon targets."

"We must enforce the agreements to prevent Chile's credit rating from being downgraded," he adds.

Deputy Jaime Naranjo (ex-PS), meanwhile, downplays concerns over the government's fiscal shortfalls, stating that "the reaction has been exaggerated beyond what is reasonable given the forecasting errors."

"As if this were the first time an estimation error has occurred. This happens in every government," he argues.

"There will have to be some budget adjustments, but I believe they will be minor, as the economy has gained a promising growth momentum," Naranjo concludes.

CORRECTION

The government lowered its 2025 GDP growth forecast from 2.7% to 2.5% in the latest Public Finance Report.

Despite failing to meet fiscal targets, government officials argue that "the reaction has been exaggerated beyond what is reasonable."