

THE GEOPOLITICS OF GREEN HYDROGEN IN THE SOUTHERN CONE

by

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When Argentina and Brazil signed cooperation agreements on green hydrogen certification with China at the China-CELAC Ministerial Forum in Beijing in May 2025, neither government had a domestic certification framework of its own. The gap between those two facts captures the problem this blogpost examines: the Southern Cone is building green hydrogen infrastructure under Chinese technical specifications before establishing the regulatory architecture that would determine whether that infrastructure can access the markets that justify building it. Argentina and Brazil have the resource conditions to become major green hydrogen exporters. What remains uncertain is not whether they will produce it, but under whose technological terms, certified against whose standards, and embedded in whose supply chains. A year after those Beijing agreements, the answer is becoming harder to reverse.

China's Early-Mover Advantage

China began entering Latin America's green hydrogen space around 2023, leveraging bilateral agreements, competitive state-backed financing, and technology transfer arrangements that Western partners have not matched in scale or speed. The [IEA's Global Hydrogen Review 2024](#) documents the dimension of this lead: China commands nearly 60 percent of global electrolyser manufacturing capacity and produces renewable hydrogen at a cost 40 to 45 percent lower than in Europe or the United States—advantages rooted in accumulated industrial policy and supply chain depth that Western competitors cannot replicate on short timelines, which is precisely why Beijing's entry into the Southern Cone has been welcomed rather than scrutinized.

In Brazil, the footprint took concrete form last year. The strategic collaboration announced with [Envision Energy](#) during President Lula da Silva's visit to China

in May 2025 was followed by Envision's selection as the technological partner for the [H2 Cumbuco project](#) at the Port of Pecém: a 500-megawatt electrolyser facility built around Envision's proprietary AI-integrated operational system, scheduled for production by 2030. The fact that Pecém is simultaneously co-developed with the Port of Rotterdam makes the regulatory tension explicit: the same infrastructure must satisfy both Chinese equipment specifications and European certification requirements. No Brazilian government document has addressed how those frameworks will be reconciled.

In Argentina, the logic runs deeper. [Ganfeng Lithium's solar-powered plant](#) inaugurated in Salta in early 2025 was designed to link lithium extraction, battery production, and hydrogen generation within a single Chinese-controlled value chain. The certification agreements signed at the China-CELAC Forum formalized this trajectory diplomatically—and neither Buenos Aires nor Brasília has since introduced legislation to condition those arrangements on export market compatibility.

The Architecture of Standardization: IHEC and the ISO/IEC Committees

Behind the investment announcements, a less visible competition is under way in the technical committees of the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC)—the bodies that define what green hydrogen is, how its carbon intensity is measured, and under what conditions it can be traded across borders. ISO TC 197, the committee responsible for hydrogen technology standards including production terminology and measurement protocols, has seen growing Chinese participation since 2021; whoever shapes those definitions shapes the baseline against which national certification schemes are judged.

China has consolidated this position through the [International Hydrogen Energy Centre \(IHEC\)](#), established with UNIDO in 2021, which provides an institutional platform for Chinese standard proposals to enter multilateral technical negotiations with UN imprimatur.

The lock-in begins with hardware. Electrolysers, compression systems, and storage units from different manufacturers are rarely interchangeable, and once a facility is built around Chinese specifications, the cost of switching suppliers during the expansion phase is one that developers almost never budget for at the contracting stage—it surfaces years later, when the original investment is already sunk. Proprietary software compounds that dependency: the AI-integrated systems that make Envision's offer commercially attractive require continued engagement with the original supplier for updates, fault resolution, and performance data, a condition written into maintenance contracts structured as requirements of Chinese state-backed financing—as documented by the [China-Latin America Finance Database](#) of Boston University's Global Development Policy Center. Hardware and software lock-in are costly to undo, but they are, with sufficient capital and time, reversible.

What is not reversible is what happens at the regulatory layer: the certification frameworks piloted through the China-CELAC agreements create facts on the ground that are structurally incompatible with the EU's [Delegated Regulation \(EU\) 2023/1185](#) on renewable fuels. If Envision's electrolysers at H2 Cumbuco cannot meet those additionality and geographic correlation requirements, Brazil risks producing hydrogen that qualifies only for non-European markets—forefeiting the commercial premium that justifies the export model.

Chile's Lesson and Its Limits

The contrast with Chile illustrates that this trajectory is not predetermined—but it requires institutional design before infrastructure is contracted. Chile's [Green Hydrogen Action Plan 2023–2030](#), built around European market access requirements and anchored to Rotterdam certification compatibility, produced measurable results in procurement. When CORFO distributed USD 50 million across six projects with a combined 396MW of electrolyser capacity in December 2021, every selected operator was European or North American: Enel Green Power, Air Liquide, Engie, Linde, GNL Quintero, and CAP. The [USD1 billion Facility H2V](#) that followed was

financed by the Inter-American Development Bank, the World Bank, KfW, and the European Investment Bank—not a single Chinese state-backed lender. Certification requirements set before financing arrangements determined who participated.

Argentina and Brazil cannot replicate this architecture. The standard answer—that both lack political will—misses the structural reality. Argentina's credit position excludes it from the multilateral lending windows that underwrote Chile's Facility H2V; for Buenos Aires, Chinese capital is not a preference but the only financing available at the required scale. Brazil's trajectory within BRICS+ makes it politically implausible to subordinate its flagship energy partnerships to European certification conditions that Beijing would read as a rebuff. Acknowledging these constraints is not a concession to fatalism. It clarifies what is actually available as a policy instrument: not the financial architecture Chile used, but the regulatory clause that Chile embedded within it—the condition that public subsidies flow only to projects certified against standards compatible with EU Delegated Regulation (EU) 2023/1185. That instrument does not require multilateral bank backing to function. It requires legislation.

Brazil's [PNH2 Triennial Plan 2023–2025](#) mentions certification interoperability as an objective, and Brazil signed the COP28 Declaration on mutual recognition of certification schemes. Neither instrument conditions infrastructure financing on those standards. Argentina's draft hydrogen legislation focused on local content requirements without addressing the standards dimension. The gap between aspiration and binding conditionality is where the problem lives—and where it will be decided, one financing contract at a time.

Before the Concrete Sets: COP30 and the Certification Threshold

The [IEA Global Hydrogen Review 2024](#) identifies misalignment between national certification regimes as the primary structural risk for market fragmentation. For Argentina and Brazil, that risk has a date: infrastructure being built today under Chinese technical specifications will reach production around

2030, when European buyers will have completed a certification architecture those specifications may not satisfy. A Brazilian electrolyser park producing hydrogen certified under Chinese standards would be confined to markets offering substantially lower price premiums than the European market that justifies the investment model.

The relevant precedent is not Huawei and national security—a framing with limited traction in Latin American policy circles—but the purely economic cost of physical incompatibility. An electrolyser built to Chinese specifications and operating under a Chinese certification regime cannot be recertified by exchanging software or rebranding its output. It requires physical retrofitting of compression and measurement systems, replacement of proprietary telemetry infrastructure, and renegotiation of financing contracts whose terms were structured around the existing certification framework. Those costs are irrecoverable by the investor, fall on the host country, and land at the moment the project should be generating returns.

Brazil's COP30 presidency in Belém is the last credible diplomatic moment before H2 Cumbuco and comparable projects become fixed. The argument for using that platform is not that Beijing should be excluded—Chinese capital will remain indispensable, and no government in the region will refuse it. The

argument is that COP30 gives Brazil the convening authority to anchor a regional hydrogen certification body capable of establishing interoperability with EU Delegated Regulation (EU) 2023/1185 as a precondition for any investor to access multilateral co-financing—a condition that shapes the terms of participation without closing the door to anyone willing to meet them.

The H2 Cumbuco park begins production in 2030. Argentina's hydrogen legislation has not been passed. The China-CELAC certification frameworks in May 2025 have not yet been implemented at the infrastructure level. There is still time to insert the regulatory clauses that determine whether the Southern Cone's hydrogen transition expands or narrows its economic sovereignty. That time is measured in months, not years.

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