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ENERGY AND NATURAL RESOURCES IN THE ARGENTINA-CHINA RELATIONSHIP: INTERESTS, COOPERATION AND CHALLENGES[1]

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Introduction

Relations between the People's Republic of China (PRC) and Latin America and the Caribbean (LAC), in general, and Argentina, in particular, have been increasing considerably in the past two decades. In 2022, trade between China and LAC reached a record US$485 billion, and by the end of 2021, the stock of Chinese investment in the region reached US$693 billion, accounting for a quarter of total Chinese investment abroad (ECLAC, 2023). Energy, food and raw materials represent the main interest of China in Latin America, based on its outstanding endowments in those areas and the Chinese needs for its food, energy and supply security.

In the case of Argentina, as well as its historic outstanding role in agricultural production, the country has world-class resources of lithium (one of the critical minerals for the energy transition), hydrocarbons (oil and gas) and some renewables energies as solar and wind, along with important capabilities and resources in other energetic sources as nuclear and hydroelectric. That explains why energy and natural resources (NR) have represented one of the main topics of the bilateral relationship in the last years.

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Argentina and the PRC have diplomatic relations since 1972,[3] and from the end of the past century they started a process of strengthening their relationship by signing numerous bilateral agreements on investment and trade. Already in the new century, and within the Chinese Going Out policy, the two countries signed a Strategic Partnership in 2004, followed in subsequent years by other instruments as the Strategic Dialogue for Economic Cooperation and Coordination, in 2010, and the scaling of the bilateral association with the sign of a Comprehensive Strategic Partnership in 2014. More recently, Argentina entered to Chinese-based international initiatives as the Asian Infrastructure Investment Bank (AIIB), in 2020, and the Belt & Road Initiative (BRI), in 2022, with occasion of the Year of Friendship and Cooperation China-Argentina (due to the 50° anniversary of the establishment of formal diplomatic ties). Additionally, due to an effort by Brazil and China, the country was invited in 2023 to join the expanded BRICS+ forum. However, the current Argentine government, which came into power in December 2023, refused to accept this invitation managed by the former government.

Along this process of strengthening of the bilateral relation, the trade between Argentina and China increased from two billion dollars by 2000 to more than twenty-five in 2023, that is, multiplied 15 times, which led the PRC to become the second trade partner of the former. At par, China has played in the last years a key role for the Argentine economy as destiny for its exports, main financier of great energy and transport infrastructure projects and the expansion of the Central Bank's reserves (through the swap mechanism).

There are several approaches in the specialized economic literature about the link between national resources (NR) and development (Altomonte & Sánchez, 2016; Schteingart, 2017; Katz, 2021). In this regard, briefly, the following positions may be noted: A) the postulate of Latin American structuralism regarding the trend deterioration of the terms of trade, whereby the pattern of specialization in the export of primary goods of the peripheral countries makes it difficult to overcome the condition of underdevelopment; B) the theory of comparative advantages of the neoclassical school and its liberal postulate under which each country benefits by specializing in that activity for which it has better conditions and where it is more efficient, whether it is NR or manufacturing; C) the theories of the "curse" of NR and the postulates

3 As Oviedo (2023) points out, that year the Argentine Republic recognized the People's Republic of China as the legitimate government of the country. Until then, the country recognized the so-called Republic of China –Kuomintang's government confined in Taiwan since the revolution– as the legitimate one since 1945, date of the first establishment of diplomatic relations between the two nations.

that the abundance of these resources would lead to the deepening of unequal international relations, corruption, economic backwardness, macroeconomic volatility and/or environmental depredation; D) certain neo-structuralist and neo-Schumpeterian postulates that affirm that NR can be levers for development and innovation in the case of achieving greater productive diversification based on linkages with other activities and with national innovation systems. Additionally, some recent perspectives question the above postulates, considering that a large part of the development strategies supported by NR and innovation are affected multidimensionally by new center-periphery relations that strain the ideas of sovereignty and economic development (Sztulwark, 2020; Bilmes et al., 2022; Kataishi & Brixner, 2023).

For some scholars, China recreates in Latin America the process of dependency, positioning most countries as suppliers of NR in the global value chains controlled by the Asian giant, while the region maintains its historic extractivist character and peripheral insertion in the world economy (Svampa & Slipak, 2018). Some facts of the bilateral relation could support this perspective (taken from ECLAC, 2023), given that, on par with the increasing economic relation of China-Latin America in the last two decades, there has been a trend of reprimarization of the regional export pattern, since basic raw materials went from representing, on average, 31% of total exports in the three-year period 2000-2002, to 80% in the period 2020-2022. In contrast, exports of natural resource-based manufactures fell from 48% to 14%, and a breakdown of bilateral trade by level of technological intensity shows that the region only has a surplus in primary goods. If such a link with China is pursued, there are certain economic risks of deepening a primary export profile without added value at origin, deindustrialization and loss of economic complexity for local productive matrices.

Noting the precedent facts but with a different perspective, it has been suggested the existence of hybrid geoeconomics of China in South America (Salgado Rodrigues, 2021), which presents a paradoxical cooperation, whose benefits can also be harmful for industrial structure and productive matrix, due to asymmetries, involving both development and dependence (or development of underdevelopment, in terms of André Gunder Frank, 1967). So, the question arises here of how to transcend western-based world system logics of uneven and combined development of the process of accumulation of wealth and power, the core-periphery dynamics and the rules of the game of neoliberal globalization, so harmful for Latin America (Martins, 2020). In this sense, and in line with Fernández et al. (2023), some articulated challenges for the bilateral agenda can be proposed, in terms of value-addition

and development of local capabilities and complexity, connections with local production networks, technology transfer and cooperation in R&D, relations with local communities and socio-environmental impacts mitigation, etc.

In this framework, the objective of this article is to analyze the role that energy and NR play in the Argentina-China relationship to inquire what type of development is outlined, considering the interests and bets of each side, and the achievements and obstacles of the numerous cooperation agreements in these fields. The preliminary questions posed are the following ones: What are the state of situation, tensions, obstacles and challenges for this bilateral agenda? How much is there of the proclaimed South-South Cooperation and win-win international relations or of reproduction of classic core-periphery relationship? The theoretical perspective is based on certain postulates of the dependency and world-system schools, heterodox and Latin-American structuralist political economy, articulated with the geopolitical perspective. The methodological strategy adopts a hybrid approach, combining the revision of documentary, institutional and journalistic sources with the analysis of economic indicators and information taken from some key informant interviews, along with the review of specialized literature.

This article is structured in the following way. After this introduction, it is analyzed the contemporary China's rise and its massive efforts on energy and NR provision, an area in which Latin America and Argentina have huge endeavors. Then, the strengthening of Argentina-China relationship is presented, highlighting the prominent role that energy and NR play in it. The next section consists of an overview of the main areas of bilateral interest and cooperation: oil and gas, nuclear and hydroelectric energy, wind and solar energy, mining and the outstanding position of lithium, the "star mineral" for current energy transition agenda. After that, an analytical balance sheet is drawn up, observing the main type of achievements, obstacles and challenges that arose from that overview. Finally, the final remarks are presented, with the considerations arising from the study conducted and prospects for the bilateral relationship.

Contemporary China's rise and its relations with Latin America

According to the reading here, in this XXI Century, the world system is experiencing a historical-spatial transition, based on the decline of Anglo-American and western hegemony along with the rise of the emergent and multipolar forces with center on Asia-Indo-Pacific, Eurasia and China (Author

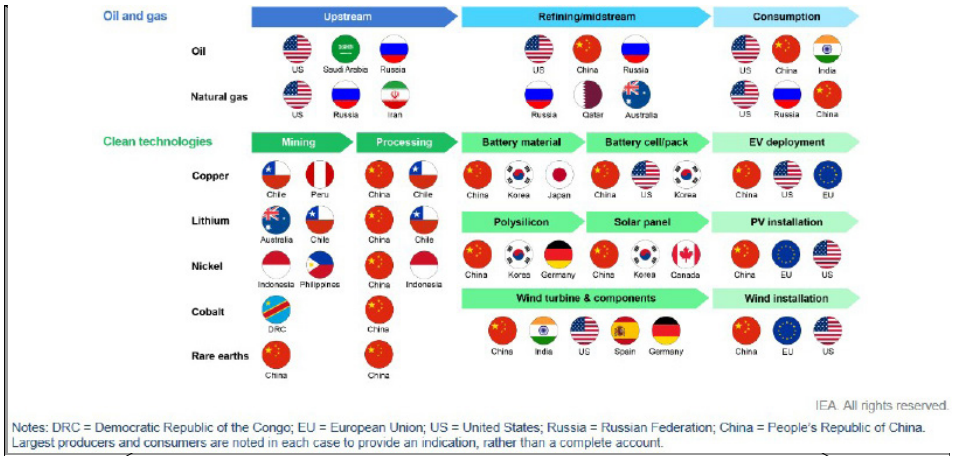
et al., 2024). The PRC implemented, since the beginning of this century, its Going Global strategy, complemented a decade after with the BRI, to expand its global presence around the globe, in which the promotion of infrastructure projects for energy and NR sourcing as hydrocarbons and minerals play an increasingly important role.

An important engine for this process is the energy transition agenda, based on the climate change phenomenon. The PRC has boosted massive plans of de-carbonization, including its foreign investments, which drive a global energetic reconfiguration, given that China alone accounts for about one-third of global greenhouse gas emissions and pledges carbon neutrality, i.e. that its emissions will be neutralized by the absorption of its territory, by 2060. To see this process in some data, it suffices to note that China's economic growth in 2023 was driven by clean energy industry, including sectors as solar, wind and nuclear energy, electric vehicles, energetic efficiency and storage, hydrogen, railroads and power grids (Myllyvirta, 2024).

At par, these Chinese efforts in the energy transition are also enrolled in the race around the new ongoing techno-productive revolution (the so-called "Fourth Industrial Revolution" or "Industry 4.0"), in which the PRC has positioned itself as one of the main players. In this sense, a sort of "key core technologies" have been codified in top-level economic planning documents, as the Fourteenth Five Year Plan, in 2020, implying the bet to construct national research-industrial complexes for them, and "oil and gas field technology" and "nuclear power" are included in the ten technologies for 2020, and "emerging energy sources" is one of the nine key core technologies for 2030 (The Center for Strategic Translation, 2022).

As Nedopil (2023) shows, energy appears as BRI's main sector of investment, with around one-third and half of total investment along the first decade of the initiative. In the beginning, coal and oil had an important role, around half of this energy investment, but it has decreased strongly, especially coal, while renewable sources as solar and wind increased its participation (from near 5% to more than 40%), and others as hydro and gas oscillated around 10/30% each one. At par, the geopolitics of energy has begun to play a major role in world politics in the last years, especially because of the global systemic chaos and the intensification of the dispute for strategic natural resources because of the Covid-19 pandemic and the new stage of the war in Ukraine. In that framework, it can be observed a trend of geopolitical fragmentation of supply chains according to the increasing presence of Western national security goals at the expense of the economic imperatives of globalization of the last decades. The prominent role of China in this global competition can be observed hereafter.

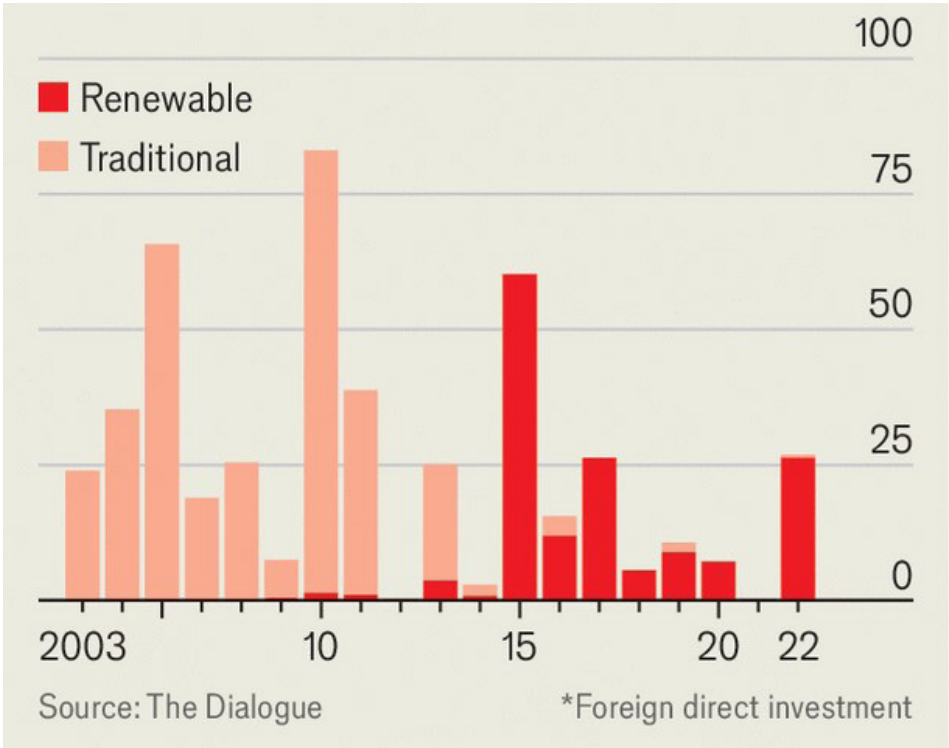
Figure 1: Indicative leaderships of supply chains of oil and gas, selected critical minerals and clean energy technologies



Source: International Energy Agency (2021).

As the world's great industrial workshop and a huge consumer market in full expansion, China is the world's largest importer of raw materials. In this sense, the relationship with Latin America, a major producer of this type of critical goods such as food, energy and minerals, is structural. This translates into numbers: the volume of trade between China and Latin America increased 35 times in this century, from $14 billion in 2000 to $500 billion in 2022 (ECLAC, 2023). According to data from the China Council for the Promotion of International Trade, this region is the second largest destination for foreign investment from China, with more than 2,700 Chinese companies operating in the region (Rey, 2022, cited in Sales, 2023). There has been a massive and growing Chinese disembarkation in the region through trade, investments, loans, acquisition of enterprises and lands, and joint agreements and projects along the last two decades. In the base of the growing Chinese demand and several bilateral agreements, China became the second trade partner of LAC, after the USA, and the first of South America. At the same time, energy has represented a relevant item of Chinese FDI to the region, as it can be seen hereafter.

Figure 2: Chinese energy FDI into Latin America and the Caribbean



Note: it is measured as percentage of total Chinese FDI to the region. Source: The Economist (2024a).

As Cao et al. (2020) point out, since 2012 Latin America has continuously enhanced its position in China's diplomatic outlook. The item "Energy and resources" has appeared both as one of the six areas of cooperation priorities of the framework of pragmatic China-Latin America cooperation, known as "1+3+6", that Xi Jinping proposed during his visit to the region in 2014, and also figured as one of the ten areas of the Joint Action Plan for Cooperation in Key Areas China-CELAC (2022-2024). Nevertheless, China's investment in Latin America has bet on transcending energy and NR to encompass more diversified ways of production, cooperation and exchange, in ambits like high education, culture, tourism, sports and science and technology. In 2018, the Latin American countries were invited to integrate the BRI as a "natural extension" of the 21st Century Maritime Silk Road. Nowadays, 22 countries of the region have already joined it, while twelve have signed a strategic or

comprehensive strategic partnership with the PRC (Gao, 2023, cited in Juste, 2024).

Argentina-China relationship: prominent role of energy and natural resources

Argentine Republic was the first of the big countries of the region to join the BRI, signing in February 2022 the Memorandum of Understanding (MoU) and thirteen secondary agreements between state agencies and enterprises of each side in different areas, three of them referred to the topics of this research: A) cooperation in clean energy and sustainable development; B) cooperation in nuclear energy with emphasis in nuclear medicine; C) agreement for creating a China-Argentina Geoscience Cooperation Center. In that event, an important amount of investment in order of 23 billion dollars was announced, which would be obtained in two tranches: one, already approved, for 14 billion dollars under the mechanism of Strategic Dialogue for Economic Cooperation and Coordination (DECCE, by its Spanish acronym) and another for approximately 9.7 billion dollars, which Argentina would present to the Ad Hoc Group created for its entry to the BRI. In the DECCE portfolio, energy plays a crucial paper, considering the following seven of the ten total projects: the Patagonian Dams "Kirchner-Cepernic", the fourth nuclear plant "Atucha III", the wind and solar park "Cerro Arauco", the expansion of the photovoltaic plant "Cauchari", the second phase of the big pipeline "Transport.Ar", the electric power transmission line "AMBA I", and the electric transmission line and pipeline "Cierre Energético Norte" (DangDai, 2023).

Then, in June 2023, both countries went beyond, signing the Cooperation Plan for BRI, which implies a "road map" of the Argentine entry to the initiative with a list of specific joint projects. In that list, which presents a prominent role of infrastructure (railways, routes, bridges, aqueducts, etc.), energy and NR occupy an important place, with four of the six priority projects: the wind farms "Antonio Morán" and "El Escorial", the hydroelectric plant "Potrero del Clavillo – El Naranjal", an electric transport system in Buenos Aires province and the project of regenerative energy "Bio Futuro"; and several of the seventeen complementary works, as the photovoltaic plant and lithium salt lake "Tres Quebradas", the photovoltaic plants "Villa María de Río Seco" and "Cura Brochero", the photovoltaic plant "Ibarreta" and the thermoelectric plant "Manuel Belgrano II" (China Observatory, 2023a, 2023b).

Other events of 2023 also illustrate the relevant paper of energy and NR in the intensification of the bilateral cooperation agenda. In first place,

Argentina presented twenty projects of renewable energy with Chinese funding –being much of them the same that integrates the Cooperation Plan for BRI– into the Green Belt & Road and the Global Civilization Initiative, which have been launched by the PRC in the last years. In effect, in front of the global agenda of energy transition and on the base of its great potential in different types and sources of clean energy, the country has seen China as a key ally for this mission. In the second term, it was approved the first loan of the AIIB for the country, destined to the construction of "Río Grande" wind farm in the southernmost province of Tierra del Fuego, for 65 million dollars. Thirdly, a MoU of Sci-Tech cooperation on natural resources and energy transition was signed, on occasion of the official mission of the then Argentine Minister of Science and Technology in China, and it was agreed to promote Chinese investment in the industrialization of Argentine lithium for the automotive industry. Finally, it was announced the construction of two plants in Bahía Blanca to produce fertilizers (urea and NPK) by China Potassium Chemical Group, for around $1250 million, along with the signing of R+D+I cooperation agreement for production of fertilizers using potassium of Argentine brines.

Chinese investment in the country grew rapidly in the last decade, because of the strengthening of the bilateral relationship, and it has become one of the main receivers of Chinese investment and financing in Latin America. According to the AidData's Global Chinese Development Finance Dataset of the "William & Mary's" Global Research Institute, Argentina was the third receiver of Chinese financing of the region between 2000 and 2017, with the same level of Ecuador and much lower than Venezuela and Brazil (Sales, 2023). Between 2007 and 2020, Argentina received around US$13 in investment from Chinese companies (Treacy, 2023). More than half of the Chinese investment announced was destined to mining (58%), followed by real estate (27%), energy (4%), industrial machinery, equipment and tools (4%), automotive and motorcycles (3%) and food and beverages (3%). At the same time, between 2000 and 2020, Argentina received loans from Chinese banks and government agencies over US$28 billion, in which the generation of energy appeared as the main sector of Chinese loans in the country (33%), followed by transport and storage (22%), and industry, mining and construction (6%) (Moretti & Fernández, 2022). At the subnational level, eight of twenty-three Argentine provinces have China as the main destiny for its exports (D'Angelo et al., 2023, cited in Juste, 2024).

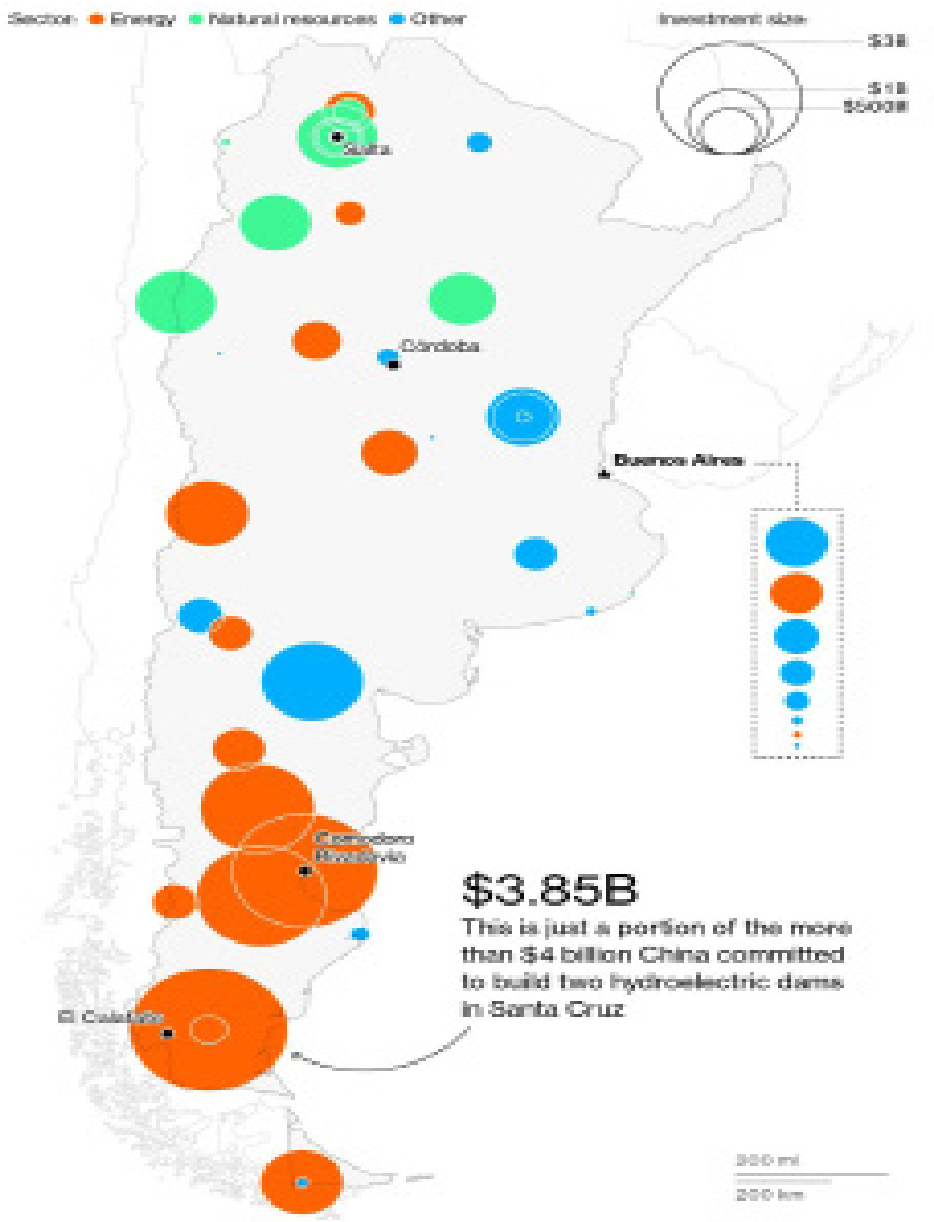
Argentine productive matrix suffered a deindustrialization process since the late 70s along with an increasing demand for raw materials related

to NR.[4] In the last decade, it has been raised the bet on establishing new export-complexes providers of currencies, an item that appears as the main problem of the macroeconomic stability of the country (the so called "external restriction to growth"), based on Argentine great positioning in terms of energy and mining in the contemporary world economic scenario. In this framework, a struggle of strategic orientations exists about the specific way this process could assume and around the development strategies.

In the following image the relevance of these topics for China can be observed.

4 The participation of the industry in Argentine GDP reached a top level of above 50% ca. 1976 and a minimum level around 22% ca. 2017 (Haro Sly, 2023).

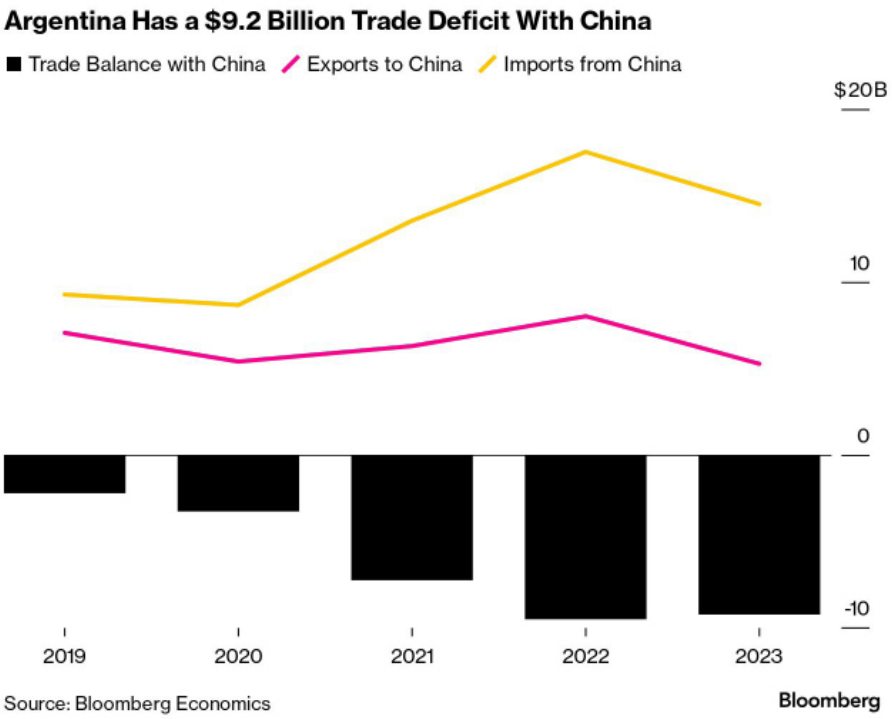
Figure 3: Chinese investments in Argentina and the prominent role of energy and natural resources



Source: Gilbert & Tobias (2024), based on data taken from Millennium Nucleus on the Impacts of China in Latin America and the Caribbean.

By observing the data of the bilateral trade in 2023, it can be noted that Argentine exports to China are concentrated on a few products, around 45% each one for both primary products as manufactured goods of agricultural origin (China Observatory, 2023a), and the main products consisted of soybeans derivatives, frozen bovine meat, sorghum and barley grains, shrimps and lithium carbonate. Chinese imports, for its part, are more diversified, around 25/30% each for intermediate goods, capital goods and parts and accessories for capital goods, and the rest was composed by vehicles and fuels, and the main products consisted of components for smartphones, televisions and other electrical artifacts, automobiles and auto parts, fertilizers and electric generators. Since 2008, there has been an increasing bilateral trade deficit, as can be seen in the following image for the last five years:

Figure 4: Trade balance between Argentina and China



Source: Gilbert & Tobias (2024).

This deficit is one of the biggest concerns of Argentine leaders and policymakers. In this sense, the Head of Investment & Trade Section of the Argentine Embassy in China expressed the following ideas:

> Argentina has not fully exploited its comparative advantages and its extreme complementarity with China, unlike other countries in the region, which I believe have a better understanding of this. We should observe what neighboring countries, such as Brazil or Chile, have done, which have totally surplus balances in their relationship with China,[5] and the way was to bet on mining and energy. Argentina's problem is that these two sectors are totally underdeveloped, so therein lay the great opportunity for the country if we want to have a balanced trade with China. Argentina has to create the conditions for these sectors to be competitive and to balance trade with China; otherwise, we will have a deficit relationship (personal communication, December 5°, 2023).

In this sense, in 2023, along with the signing of the Cooperation Plan for BRI and several high-level visits to China which included meetings with the main Chinese mining companies, a commitment was expressed to boost Argentine lithium great potential, a key critical mineral for the global energy transition. The first Argentine Chinese Chamber of Commerce was launched, and the Argentine leaders expressed a will to establish a type of mining with local value-addition, jobs, providers and capabilities, links with local communities and compliance with environmental standards. At the same time, with the aim of accelerating the trade relationship and eliminating intermediation, it was announced the opening of direct trade between the two countries through RMB, and –not casually– the first operation of direct investment through the Chinese currency in the country took place, by the Bank of China and for boosting the Chinese mining business, especially on lithium (DangDai, 2023).

Energy and mining: overview of the main areas of bilateral interest

5 Observing available data for sizing this idea, these large surpluses in 2020 amounted to forty billion dollars for Brazil, eight billion for Chile and even, also, three billion for Peru (Bustelo & Rubiolo, 2023).

It is well known the Argentine energetic potential, due to its great solar radiation in the mountain range area for photovoltaic energy production, some of the best winds on the planet in the Patagonia region for on-shore wind energy, the Vaca Muerta field and its massive unconventional oil and gas reserves, the third largest lithium reserve in the world, along with some promising new sources of generation and storage of energy as its maritime potential for wave and tidal energy development, green hydrogen, biofuels and more. A general overview of the main sectors is presented hereafter, detailing the Chinese companies' presence, bilateral projects and cooperation agreements.

Hydrocarbons

It is a popular saying that Argentina is a country with oil and gas (O&G) but not a petroleum country, like Venezuela and Middle East countries. That idea started to be contested, since 2010 with the boom of "Vaca Muerta" geologic formation, located in the mid-west of the territory, rich of unconventional hydrocarbons: shale and tight gas and oil, mainly. Its world-class resources have been estimated by the US Energy Information Administration as the second biggest resource of unconventional gas (around 308 trillion cubic feet of gas) and fourth in terms of unconventional oil (around 16 billion barrels of oil), placing Argentina as the third country in the world in terms of technically recoverable shale gas resources, after China and US.

China, for its part, is an important player in the hydrocarbons industry, being the second biggest consumer of oil and third of natural gas, the second in terms of oil refining capacity and located at the top ten in terms of production of oil and gas. A large part of its capacities is controlled by state-owned companies as its National Oil Companies (NOC) China National Petroleum Corporation (CNPC) –and its subsidiary PetroChina–, China Petroleum & Chemical Corporation (Sinopec) and China National Offshore Oil Corporation (CNOOC). In Argentina, Chinese investment in the energy sector began to play an important role between 2010 and 2011, when two of the three major NOC entered the Argentine oil and gas sector: Sinopec bought the Argentine subsidiary of US company Occidental Petroleum for US$ 2.45 billion, reaching the fifth place in terms of extraction of oil in the country some years later, and CNOOC acquired a 50% stake in Argentine company Bridas, for US$ 3 billion. This local company is part, together with BP, of Pan American Energy, which operates the biggest oil field of the country, "Cerro Dragón".

Spanish company Repsol, which controlled the historic Argentine NOC, Yacimientos Petrolíferos Fiscales (YPF), since its privatization between 1993 and 1999, launched a promotion campaign of Vaca Muerta formation since 2010, and by 2012 it was negotiating with transnational companies as CNOOC and Sinopec for selling its 57% stake in YPF, valued because of the boom of Vaca Muerta. Notwithstanding, due to the responsibility of Repsol in front of YPF on national energetic deficit, and regarding the global positioning of the unconventional hydrocarbons of Vaca Muerta, the Argentine government of that moment decided the expropriation of YPF, in a measure we have characterized as a hybrid renationalization (Bilmes, 2023).

The new administration tried to establish joint ventures with Chinese companies, between others, to boost investment in Vaca Muerta, and in 2015 YPF firmed a MoU with Sinopec, days before the Argentine presidential trip to China in which both countries signed a series of bilateral cooperation agreements to deepen the Comprehensive Strategic Partnership. The bet was to diversify the geopolitical interests' allies for the development of Vaca Muerta, in which US, British, French and German companies had started to operate. However, the agreement between YPF and Sinopec was rendered ineffective under the following government of Mauricio Macri (2015-2019), which announced a revision of the terms and conditions of all agreements signed with the PRC in the previous years, in the framework of an important restructuring of the development strategy, external policy and international cooperation of the country.

In 2017, Bridas, BP and CNOOC agreed to merge its assets, creating Pan American Energy Group (PAEG), which became the biggest private company of O&G in the country and entered Vaca Muerta. The development of this promising geologic formation was boosted in massive scale by the renationalized YPF in association with US company Chevron since 2013, and nowadays the Argentine NOC has a major part of the blocks (above 40%, mostly in joint ventures with other companies). PAEG, in which CNOOC has 25% stake, is one of the main players there, and the second oil producer of the country. Sinopec, for its part, left the country in 2021, when it sold its Argentine assets to local company CGC, and some suppliers explained that due to problems with the labor unions and the Argentine energy policy and macroeconomics (Bidegaray, 2021).

During the Alberto Fernández presidency (2019-2023), the relation with China took strength again, and different types of agreements were signed for building the infrastructure of distribution of Vaca Muerta exponential increasing production, especially a pipelines system and a train, both for self-supply as for exporting, and considering the high capital costs

and huge need of funding and infrastructure that the Argentine energy sector has (FARN, 2022). Between 2020 and 2023, different types of negotiations and agreements were reached between the Argentine government and the companies China Machinery Engineering Corporation (CMEC), Railway Construction Corporation Limited (CRCC), CRRC Corporation Limited and Yutong, for amounts around US$ 900 million, for the project of readjustment of the Norpatagonic Train, which link the city of Añelo ("heart" of Vaca Muerta) with Bahía Blanca port (an 800 km route) in order to facilitate the logistics of supplies for O&G production.

At the same time, in 2021 a MoU was signed with the companies PowerChina and Shanghai Electric for the engineering, design, equipment provision and funding for the so-called Transport.Ar pipelines system (which included the construction of two pipelines and extension of several old pipelines), for more than US$ 3 billion and with the projected funding of Chinese banks for 85% of the works. In 2022, another MoU was signed with PowerChina, for almost US$ 2 billion, for building the second phase of this pipelines system project, especially the construction of the so called "Néstor Kirchner" pipeline (from Salliqueló, in Buenos Aires province, to San Jerónimo, in Santa Fe province, of almost 500 km), being a project included in DECCE portfolio. However, the first stage of the pipeline was assigned to the Italo-Argentine company Techint, thanks to the bidding terms and conditions, whereby the Chinese companies that were to participate did not even submit their proposals (FARN, 2022).

Finally, in 2023, in the Argentine high level visit to China when the Cooperation Plan for BRI was signed, YPF President, Pablo González, exposed the main Argentine projects (Valli, 2023): Vaca Muerta production and infrastructure system, like "Vaca Muerta Sur" oil pipeline; "Palermo Aike", the second biggest unconventional play, in Santa Cruz province, with potential of resources of one-third of Vaca Muerta and which was starting its first exploratory well; the liquefied natural gas (LNG) hub project in Bahía Blanca;[6] and the second round of offshore exploration bidding in the Argentine Sea, which represents one of the more extensive exploratory frontiers, with resources to discover in order of dozens billion barrels according to institutional information. González established high level meetings with the aim to invite Chinese companies to invest in those projects: with CNPC and CNOOC, China Communications Construction Company (China's leading port infrastructure company that specializes in regasification port terminals), COFCO (leader of Chinese agricultural industry and one of the world's leading agri-businesses), and ICBC and CICC banks. In line with this last point, it

6 Since 2021, China has become the top LNG importer in the world.

was announced that YPF could go public in Hong Kong Stock Exchange, expanding opportunities for Chinese companies to acquire YPF shares.

Notwithstanding, despite this sort of bilateral agreements and approaches, nothing of all of that prospered, and all the bilateral agenda was paralyzed by the new Argentine president, Javier Milei (2023-present days), who have blamed China as a communist dictatorship in the electoral campaign and who have made a subordinated alignment with the US and the western bloc.

Nuclear energy

In this clean and promising energy source, key for the energy transition, Argentina has a mature nuclear industry, guided by a Nuclear Plan and a strong role of the State since the 1950s. Nowadays, it is one of the few countries in the world with design and manufacturing capabilities in this area, having three nuclear power plants in operation and being able to produce and export small modular reactors (Hurtado & Haro Sly, 2023). China, for its part, has strong nuclear power construction capabilities and has established a comprehensive nuclear industry system, and it appears as the main player in this field, considering that its construction of nuclear reactors surpasses the rest of the world and it is planned to build 150 nuclear reactors in the next decade and a half, which represents more than what have been built in the entire world in the last 35 years (Bloomberg, 2022).

The two countries cooperation in this area goes back to 1985, with the signing of a cooperation agreement on the peaceful use of nuclear energy, which was deepened in 2014 on Xi Jinping's visit to Argentina, when it was signed an Intergovernmental Agreement on Sino-Argentine Cooperation in Construction of Heavy Water Reactor Nuclear Power Plant in Argentina (Cao et al., 2023). Between 2014 and 2015, during the last years of Cristina Fernández de Kirchner government, there were signed preliminary agreements for the construction of two nuclear power plants, called "Atucha III and IV", four decades after the last one constructed in the country, but since then the initial plans have been modified several times (González Jáuregui, 2021). Even though in 2016, under Macri government, it was signed a MOU for advance in both projects, two years later, after the agreement with the International Monetary Fund (IMF) because of the financial crisis triggered that year, Atucha IV project was cancelled[7] and it was changed the contractual scheme

7 That first project consisted of a CANDU type central, with natural uranium and heavy water, and could have implied 70% of national participation. It was affected by the mobilization of

for Atucha III, which went from a consortium between the companies Nucleoeléctrica Argentina (NASA) and China National Nuclear Corporation (CNNC) that included technology transfer in the field of PWR reactors, to a turnkey contract (Hurtado & Haro Sly, 2023).

In 2022, in the framework of the Argentine entry to BRI, NASA and CNNC signed an engineering, procurement and construction (EPC) contract for the building of the fourth Argentine nuclear power plant (Atucha III) in Lima, Buenos Aires province, with 1200 MW of energy generation (registered at DECCE portfolio). This constitutes the biggest Chinese investment project in Argentina and of world-class in the sector, valued around 9.2 billion dollars and which contemplates planned funding of 85% by the Industrial and Commercial Bank of China (ICBC) and the rest by Argentine national treasury. It has been planned for this plant to adopt the HPR1000 reactor enabled by Chinese Hualong One technology, using enriched uranium as fuel and light water as coolant and moderator, with 1200 MW raw power. Estimates were announced regarding the creation of more than seven thousand direct jobs and the integration of around 40% of national suppliers for this project, including technology transfer for Argentine fabrication of fuel assemblies.

At the same time, the Argentine company of high technology Investigaciones Aplicadas (INVAP) and the Chinese company State Power Investment Corp. (SPIC) signed, in the framework of BRI, a cooperation agreement on nuclear medicine, deepened some months later with the agreement between INVAP and Jiangxi Nuclear Power and Shanghai Engineering Research and Design Institute for export of reactors and the production of medical isotopes. The following year, this was strengthened with another agreement for Argentine export of nuclear technology to its Chinese counterparts, specifically on design and construction of radioisotope production plants and technetium generators for nuclear medicine, with Argentine technology (Glezer, 2023). Also, NASA signed another contract with CNNC to provide technical assistance (engineering services) to support retubing work for the refurbishment of China's Qinshan Nuclear Power Plant, because of Argentine knowledge on CANDU technology. These cases can be seen as a milestone and virtuous example for Argentina, considering that in this area it can export and transfer technology and, so, break the classic position of a peripheral country (it is one of the few Latin American countries able to export this type of technology), on the base of Argentine critical mass, techno-productive capabilities and power of the entrepreneur State on this topic

local communities against the project due to its socio-environmental impacts, around 2017, which led to the prohibition the installation of nuclear plants in Río Negro province, where the project was planned to locate.

(Hurtado & Haro Sly, 2023). In this sense, INVAP and the Argentine National Commission of Atomic Energy have global recognition for the capacity and experience of export research reactors, supplies as radioisotopes and qualified nuclear components to several countries as Australia, Netherlands, India, Egypt and Algeria.

Notwithstanding, all this cooperation generated alarms in the US, which expressed its disagreement over the construction of Atucha III, the Hualong I plant and Chinese financing, adducing the potential theft of information by China and the possibility that the construction of this plant could generate nuclear accidents, and it has been evident the pressures to stop it (Blinder & Vila Seoane, 2023). That is why a project as Atucha III has been paralyzed, along with other factors as the Argentine macroeconomic instability, the agreement with the IMF because of the huge loan of 2018, domestic political disputes and the complexity of the financial and institutional procedures needed. Finally, in 2024 Milei committed to the US to stop or cancel this project and has paralyzed all the development of the Argentine nuclear sector.

Hydroelectric energy

This type of energy represents the world's largest source of electricity from renewable resources –water in this case–.[8] Chinese power in this type of energy is well represented in the iconic "Three Gorges" Dam, located in Yichang, over the Yangtsé River, inaugurated in 2003 and which appears as the biggest of the world in extension and installed capacity. Chinese funding for large-scale hydroelectric infrastructure, as dam building, have been increasing in the last two decades, and this type of energy generation represent the second in terms of investment and funding from Chinese development banks, around 20% of the total amounts in the world since 2000 (Gallagher, 2020, cited in González Jáuregui, 2021).

Patagonian Dams "Néstor Kircher - Jorge Cepernic" in Santa Cruz River are the biggest energetic Chinese project in the region, estimated as the highest latitude dams with the highest productive capacity in South America, with 950 MW and 360 MW, respectively. They were planned to take advantage of the constant flow of the Santa Cruz River, the country's largest river. They are valued at USD 4700, also part of DECCE portfolio and represent the

8 As the large-scale hydroelectric projects could negatively affect water availability, alter ecosystems and populations, in Argentina, only small-scale hydroelectric projects (until 30/50 megawatts) are considered renewable.

biggest Chinese investment in progress in the country (DangDai, 2023). The first agreement was signed in 2015 between Fernández de Kirchner and Xi, after a public bidding process opened in 2012, but then it was paused during the following government.

The project was retaken by Fernández government, in 2020, with a slow rhythm of advance, in charge of the joint venture Represas Patagonia, integrated by Chinese company Gezhouba (54%) and its Argentine counterparts Eling Energía –formerly named Electroingeniería– (36%) and Hidrocuyo (10%), and contemplated funding of Chinese Development Bank, ICBC and the Bank of China. Cepernic Dam reached a progress of 42% of the planned work and Kirchner Dam around 20%, but the project has been paralyzed again by the Milei government. As González Jáuregui (2021) shows, it has been widely criticized because of its environmental and social negative impacts by different organizations of Argentine civil society, and some NGO presented a precautionary measure in the courts, but the national government lifted it in 2017 and approved the Environmental Impact Assessment of the project, although the juridical dispute did not stop.

Another project with Chinese incidence is the hydroelectric complex "Potrero del Clavillo - El Naranjal" (125MW), located in the provinces of Catamarca and Tucumán, estimated as the biggest hydric project in the north of the country, valued around US$ 1 billion. This is one of the projects included in the BRI Cooperation Plan, planned to be constructed by a joint venture between Power China and Panedile Argentina and in search of international funding. A joint venture of both companies is already building the "El Tambolar" dam in San Juan province, with a capacity of 70 MW.

Wind and solar energy

Argentina has world-class resources of solar and wind energy, with some of the best photovoltaic (PV) power potential in Andean and sub-Andean regions and some of the best winds in its Patagonian region. As González Jáuregui (2021) points out, the country has become a relevant recipient of Chinese investment and financing for the deployment of these types of energy, while China has seized this opportunity to participate in Argentina's energy transition strategy. This obeys to the leading role the PRC has assumed in the energy transition process, explaining a very relevant measure of the manufacturing of key clean energy technologies such as solar PV (between 60 and 90%) and wind turbines (40%) (Bian et al., 2024). China appears as the world's leading producer and exporter of solar panels, exporting them

to LAC together with photovoltaic products such as silicon wafers, cells and photovoltaic modules, and wind turbines (Cao et al., 2020).

Argentina has several wind and solar projects in the bilateral mechanisms described. First, the Cauchari PV solar plant, located in Jujuy province, which appears as the highest in the world (above four thousand meters of altitude) and the biggest Chinese PV park in LAC. The provincial company JEMSE, in charge of the project, contracted PowerChina and Shanghai Electric for the engineering, acquisition, construction and start-up, and Talesun provided the panels. The projected extension of capacity, from 300 to 500 MW (stages IV and V), is part of DECCE portfolio (DangDai, 2023). Another DECCE project is the wind/solar park "Cerro Arauco" expansion, in La Rioja province (200 MW), in charge of Power China too. Then, the wind parks "El Escorial" and "Antonio Morán", located in Chubut province and 233 MW projected capacity, are part of BRI portfolio, with Chinese company Gezhouba in charge. Also, as complementary projects to discuss in BRI portfolio, figures the PV plants "Villa María de Río Seco" and "Cura Brochero", located in Córdoba province (35 MW and 30 MW respectively) and the PV plant "Ibarreta", in Formosa province - 100 MW (China Observatory, 2023a).

In the RenovAr Program, designed for the supply of electricity from renewable energy sources, Chinese companies obtained 27% of total assigned in its three stages, between 2016 and 2017, and this Chinese investment was distributed 57% for solar PV, 42% for wind and 1% for biogas (Núñez, 2020). Also, Chinese company Goldwind, second global manufacturer of wind turbines, acquired the wind parks "Loma Blanca" I, II and III, in Chubut (150 MW) and another one in Miramar, Buenos Aires province (96 MW). Power China, the Chinese biggest operator in those segments of renewable energy, built solar parks as "Cafayate" (Salta province, 101 MW), "Diaguitas" and "Tamberías" (San Juan province, 2 MW and 4 MW). Envision Energy won contracts for building several parks: "García del Río" and "Vientos del Secano" (Buenos Aires province, 10 MW and 50 MW), and "Los Meandros" (Neuquén province, 125 MW). Jinko Solar won a contract to build solar park "Iglesia Estancia Guañizuil" (San Juan province – 80 MW). And, finally, Sinohydro also won a contract for building the wind park "Pampa" (Buenos Aires province – 100 MW), but it was cancelled later because of delays in the start of the construction phase (González Jáuregui, 2021). Finally, China-LAC Cooperation Fund, Energy China and China Huadian Engineering participate in the building of the wind park "Viento Reta" (Buenos Aires province – 100 MW).

In short, the PRC has become an important player in the Argentine

renewable energy sector in terms of technology provision, construction and operation of wind and solar parks, and equipment sales (Lewcowicz, 2022).

Mining and the star mineral: lithium

Argentina has a great mining potential, with a low grade of exploitation if it is compared with its neighbors Chile and Peru, two of the biggest minerals producers, with whom it shares the Andean Mountains. Although mining has been a minor activity in its history, since the end of the past century it began to be strongly powered. The most relevant minerals (in economic terms) in Argentina are copper, gold, silver and lithium, while other minerals, such as potassium, iron, uranium, boron, molybdenum, vanadium and zinc, could have opportunities for development (Bustelo & Rubiolo, 2023).

Meanwhile, China is an important player in this field, leader in terms and reserves and extraction of some of the so-called critical minerals, and especially about processing, a segment in which dominates strongly for several of those, for which depends on the import of concentrates and raw materials, so the security of supply is a major concern (Bian et al., 2024). The presence of the PRC in Argentina has acquired a great relevance in the last years, scaling its presence since the 50% stake bought of "Veladero" mine (San Juan province, of ore and silver) by Shandong Gold, in 2017. According to data taken from Argentine Mining Secretariat (2023), since 2020, China appears as the second country in importance in terms of investment announced, after Canada, reaching more than US$ 3 billion. Chinese mining companies, such as Hanaq, Shandong, MCC and CAM, have a strong presence in Argentina, in projects and investments covering a wide range of minerals in several provinces of the country. From Jujuy to Chubut, these initiatives include the extraction of lithium, gold, silver, copper, zinc, iron and lead, positioning China as a key player in the Argentine mining sector.

Nowadays, the major interest is centered on lithium, which have positioned in the last decade as the "star mineral" for the energy transition due to its uses for the emerging green economy, especially in batteries: both for electronic devices and electric vehicles (EV), the latter being one of the fastest growing and most globally competitive areas in recent years.[9] Argentina is part of the "Lithium Triangle" (with Bolivia and Chile), where it is estimated

9 The PRC has set a target that at least 20% of new cars sold annually by 2025 should be renewable energy vehicles, and by 2035 this type should become the "mainstream" of new car sales, and Chinese electro-mobility market represents half of the world's electric vehicle sales (The Economist, 2024b).

that more than half of the world's lithium resources are concentrated. At par, the country appears as the world's second in terms of resources, third in reserves and fourth in production, while it presents a bigger potential than its neighbors because of the great quantity of projects (more than 40 currently) compared with them (Author et al., in press). In 2022, Argentina exported more than US$ 300 million in minerals to China, and above 92% of that amount corresponded to lithium carbonate, followed by silver and its concentrates. The PRC appeared as the main lithium exports destination, with almost 42% of the total (Argentine Mining Secretariat, 2023).

Chinese companies have achieved a leading role in the global value chain of this coveted mineral, both in terms of production and processing (as Tianqi and Ganfeng) and ion-lithium battery manufacturing and EV production (as CATL and BYD, respectively). According to González Jáuregui (2024), Chinese companies present peculiarities compared with the other enterprises: their interest in Argentine lithium is not limited to a financial business neither profitability in short or medium term, but they point to control lithium carbonate battery-grade that the plants will produce for exporting to China and use it there for fabrication of batteries and other related products. In the last years, Chinese companies as Ganfeng, Tsingshan, Zijin, Zangge, Tibet Summit Resources, Hanaq y Revotech acquired an important position in the lithium Argentine sector through different measures as mergers and acquisitions and joint ventures with Western counterparts, and they have participation in thirteen projects, mainly in advanced stages.

At par, in contrast to other types of management of the local tensions generated by this "lithium fever" in the North of the country, Chinese companies (as well as Canadians ones) have signed agreements with all affected indigenous communities in the territories where each project is placed. These agreements imply investments and donations for building or repairing schools, libraries, community centers, providing internet access and PCs, job provision, training and monetary compensation (González Jáuregui, 2021). In effect, this is a sensitive problem for all types of extractive project related to NR and energy, given the relevant anti-extractivist movement and social opposition to them along the country, due to the lack or deficiencies of environmental impacts studies; free, prior and informed consent processes and public controls to extractive projects.

Finally, it can be noted a set of agreements signed between 2021 and 2023 by Argentine governments and companies at both the national and provincial levels with Chinese counterparts to advance industrialization at source through the location of battery factories, the provision of equipment and machinery, and scientific and technological cooperation, although many

of these agreements have not materialized (Author et al., forthcoming). Notwithstanding, as González Jáuregui (2024) notes, despite the proliferation of recent cooperation agreements, they do not include specific clauses of technology transfer and/or joint technological and industrial development between the Chinese companies and its Argentine counterparts, be it the State, the scientific system and/or local companies.

General balance: achievements, obstacles and challenges

As can be observed throughout the previous reconstruction of the main areas of bilateral interest and cooperation, there is an important heterogeneity of situations, with different types of initiatives and cooperation instruments, firms positioning and unequal progresses and results in each case. Hereafter it is presented an articulated summary of this diverse situation picture, highlighting the tracks with more and less success.

The successful instruments are presented in first place: 1) Chinese firms positioning through market mechanisms like mergers and acquisitions and joint ventures, especially in O&G, wind energy and mining –not exempt from problems, like Sinopec's departure from the country–. 2) Chinese firms positioning through biddings, especially in wind and solar energy, a sector where they have become important players in matters of technology provision, the building and operation of parks. Then, the instruments that have not resulted successful, at least until now, refer to: 3) Different types of cooperation agreements in matter of O&G –either production or distribution infrastructure building–, nuclear and hydroelectric energy –plants and dams' construction–, and lithium –joint investments and industrialization projects for ion-lithium batteries–.

So, there are still difficulties in the process of cooperation . As Povse & Pedrosa (2023) notes, agreements, memorandums, expressions of intent and even contracts with suppliers abound, but few projects are financed, and even fewer are carried through to completion, estimating almost sixteen billion dollars that are expected to be disbursed and used for the mutual benefit of China and Argentina.

This represents a key issue, and, in this regard and on the base of the precedent overview of the main areas of bilateral interest and cooperation, some explanatory factors are postulated hereafter: A) Geopolitics, given the US' pressures, in a transparent way in some cases (like around the nuclear sector) and in an underhanded way in others, in order to cut either paralyze Chinese strategic projects in the country; B) Argentine macroeconomic

instability since 2018, which have implied currency tensions, taxes and related problems, and a chronic and uncontrollable inflation; C) Social license issue, given the resistance of civil society groups like local communities of the regions where some projects are designed to be emplaced and members of the important anti-extractivist movement in the country; D) Management, related to political alternation of governments that paralyze or modify certain bilateral agreements, either regulatory issues, lack of efficiency and certain «one egg in each basket» logic (given that some BRI projects have been negotiated at the same time with other international funding organisms like the Interamerican Development Bank –Álvarez et al, 2024–), among others.

To present major details of some of the precedent factors, it can be noted the following extracts of certain protagonists, on the basis of some interviews to them, both made by the author's research and taken from newspapers. In the first place, the Head of Investment & Trade Section of the Argentine Embassy in China expressed that, generally, the country reached mere political agreements, but few reached to commercial stage (EPC contracts) and less to financial steps to concrete. At par, the following ideas are eloquent to be cited at length:

> There is a great willingness on the Chinese side to cooperate, but this cooperation often remain at a purely political level, partly because it is difficult for Argentina to find the conditions for the State to articulate with private actors, partly because when it comes to State actors it is difficult for the State to translate policy into concrete actions, and partly because the macroeconomic conditions of recent years were not in tune to make this type of investments that are of a longer term (personal communication, December 5°, 2023).

In addition to this appreciations, it can be observed, from the Argentine side, the lack of a planned and coordinated strategy in the relationship with China, existing different State agencies, companies and civil groups without centralized coordination, a problem directly related to the strategic and political struggles about the development model, the geopolitical interests and international insertion of the country in the current world (dis)order.

On the other hand, Tu Shuiping, former president of PowerChina's Argentine subsidiary and currently Latin America Director of State Power Investment Corp. (SPIC), interviewed for this research, expressed several obstacles for the numerous projects that the company has in the country (being 32 in total: 20 already finished and 12 in project state) related to

economic or political viability of the projects. He said that Argentina is very complex, presenting huge opportunities but with a limited business, remarking conflicts with labor unions. Also, having lived many years in the country he could learn the Argentine culture and he marked as guidelines the necessity of establishing plans and projects with competitiveness, reliability and efficiency, meeting deadlines and goals (personal communication, December 6°, 2023).

In a similar line, Ling Peitian, the general manager of Goldwind Argentina expressed that investing in the country implies an extra risk compared with other countries of the region, due to the volatility of legal and regulatory issues and foreign exchange restrictions, among other factors. Notwithstanding, this does not detract from the "very high attractiveness" of this market, with excellent resources, growth potential, and laws and regulations that support the development of clean energy (Lewcowicz, 2022). Finally, Zheng Weihui, co-chairman of the Silk Road International Cooperation Summit Forum, director of the Belt & Road Cooperation Center in Argentina and general director of the Chamber of Chinese Businessmen and Traders in the country, expressed the high capacity of Argentine qualified labor force and that the interest on Latin America and Argentina is not reduced to its raw materials but also to its industrial development, which may serve as platforms for enter products to United States and Europe (Nesci, 2024).

Then, as different authors note (Núñez, 2020; González Jáuregui, 2021; Rozengardt, 2023; Juste, 2024), it has been a learning process from the Chinese side to include subnational Argentine actors (governments and companies) in the joint projects in order to transcend the problems related to political transitions, in a multilevel and multi-actor strategy that position Chinese interests through enterprises, banks, diplomatic representatives and cultural agencies and its links with Argentine counterparts. At par, it can be observed the preference for including a local strategic partner in joint ventures, like Argentine provincial companies or private companies, with successful experiences especially in the renewables sector and in O&G, hydroelectric and nuclear energy. Reinforcing this idea, the Head of Investment & Trade Section of the Argentine Embassy in China expressed that an error that Chinese actors had in the oil and gas sector –with respect to Sinopec's problem and exit of the country in 2021– was that they did not find the right local partner and operated alone, and concluding: "I think they have learned that and they are now always going to look for local partners for investments" (personal communication, December 5°, 2023).

For other part, this sort of obstacles to the bilateral cooperation, especially those related to joint efforts over industrialization, sci-tech and

value addition at origin to NR affect the possibility to Argentina to gain techno-productive capabilities to scale positions in the global value chains, while the exports of the resources without processing –or in low levels– grow strongly. Meanwhile, many cooperative projects, especially around renewable energy and lithium, are carried out under a turnkey model, in which China assumes financing, planning, engineering, equipment and supplies acquisition, construction and commissioning, with a linkage model that promotes the dependency to Chinese capital and companies in most cases, with none or little technology transfer and know how (Bustelo & Rubiolo, 2023; Juste, 2024). In this line, Treacy (2023) points out the existence of a logic of cooperation and dependency that the relation with China offers for Argentina, and the dependence derives from a structural condition given the necessity of the country to attract capitals for needed investments for development and, at par, importing supplies, manufacturing and technology.

However, important exceptions to this trend exist, as previously stated about the first agreements around the nuclear power plants, then modified by the following Argentine government in a pernicious way for national industry and technology, and Argentine nuclear technology export to China as an important milestone. On occasion of this last event, the former Argentine Ambassador in China, Sabino Vaca Narvaja, expressed that Argentine companies as Nucleoeléctrica, INVAP, ARSAT, YPF, Inti, Nuclearis and SpaceSur were cooperating in sci-tech matter with Chinese counterparts (Glezer, 2023). In this respect, around 40% of bilateral agreements documents refers to sci-tech cooperation (with nuclear energy and NR as part of the main areas), and it is included the possibility of develop joint products, patents and bi-national companies, although, at par, only 11% of the agreements explicitly mentions technology and knowledge transfer (Haro Sly, 2017b and 2019, cited in Hurtado & Haro Sly, 2023).

In short, summarizing the results of this research in line with the guiding questions stated in the beginning, it can be supported that there is space in the bilateral agenda for a more relevant place for Argentine techno-productive capabilities, in order to tension the historic peripheral position of the country in the international labor division and to materialize the South-South Cooperation principles in this topic, but it depends on the national coordination, planning and consensus, which represents a very difficult matter nowadays. So, an important Argentine deficit exists in this point, and it implies a key challenge to press for the establishment of learning processes from Chinese know how, the inclusion and promotion of local sci-tech resources and a bigger participation of local companies and technologies in the Chinese-funded projects for the sake of capabilities diversification and

scaling up of the productive framework.

In this sense, the strengthening of the Argentina-China relationship, the BRI and other Chinese-based global initiatives, and the increasing energy transition agenda can become a window of opportunity as a vector of development, as Hurtado & Haro Sly (2023) states, if Argentina is capable of sustaining strategic national objectives and making a qualitative leap in its institutional framework, as well as in its capacities for coordinating policies, public-private partnerships and the generation of conditional incentives for productive and infrastructure investment. So, far from the idealization or demonization of China, conceived either as a menace or salvation, it results key the existence of a project of sovereign and autonomous development, to benefit from these windows of opportunity but as a geopolitical option, with the social forces able to support that project (Fernández et al., 2023; Author et al., 2024).

Conclusions and final remarks

As it has been analyzed, in the framework of the increasing relations between China and Argentina, and on the base of the huge potential of the southern country in terms of energy and natural resources, these topics represent one of the main interests in the bilateral relation. This obeys to an Argentine bet to counter the trade balance deficit with PRC and to build new export complexes providers of currencies (one of the most sensitive chronic problems of the country), as well as this is intertwined with Chinese needs for its energy and supply security. This is why energy and NR have a great relevance both at Argentine entry to Chinese-based initiatives as BRI, the existing bilateral cooperation mechanisms, Chinese investments in the country and in the bilateral trade balance.

Then, having analyzed the main areas of bilateral interest and cooperation (oil and gas, nuclear, hydroelectric, solar and wind energy, and mining), it can be noted an important heterogeneity of situations, with different types of initiatives and cooperation instruments, firms positioning and unequal progresses and results in each case. As a general conclusion, it can be noted that Chinese presence grew considerably on its own (either through mergers and acquisitions, joint ventures or biddings), while bilateral cooperation found a sort of obstacles that impeded to concrete the numerous agreements signed in each area. We have postulated some explanatory factors for these obstacles: A) Geopolitics, B) Argentine macroeconomic instability C) Social license issue, D) Management problems. In order to transcend these

obstacles, it has been a learning process from the Chinese side to include subnational Argentine actors (governments and companies) in the joint projects, and an important challenge consists of materializing the numerous agreements on each area. From the Argentine side, we understand as a key challenge the assignment of a more relevant place for its techno-productive capabilities, to tension the historic peripheral position of the country in the international labor division and to materialize the South-South Cooperation principles in this topic, but it depends on the national coordination, planning and consensus, which represents a very difficult matter nowadays.

Finally, concerning the future perspectives of the bilateral relationship, it appears a big question related to the changes in course given the geopolitical orientation of the current Argentine government, totally aligned with the US in its dispute against the increasing Chinese positioning in Latin America, a region conceived as its backyard. The current president Milei, auto-assumed as liberal-libertarian and anarcho-capitalist, not only has expressed several declarations against China but has paralyzed almost all type of bilateral cooperation (excepting the swap, given the Argentine chronic currency crisis), especially on the most strategic projects and on the base of US pressures in this regard (Lewcowicz, 2024). In effect, the intense and increasing geopolitical struggle has a relevant point on the control and access to strategic natural resources, and it concerns strongly the Argentine ones, which have a huge potential in the middle of the current race for the energy transition and the ongoing techno-productive revolution.

Notwithstanding, geoeconomic dynamics could change governments' orientations, as it happened previously with Macri's government or in the neighbor Brazil with Jair Bolsonaro, when both domestic economic interests and the need for sustaining the huge Chinese investment and trade involved a moderation of hard pro-Western initial positions and new pragmatic approaches towards China, to the detriment of ideological concerns as function of joint businesses. Currently, there are also indications to this effect at present, and the Argentina-China relation could be retaken again, prevailing pragmatism on both sides. At par, it is important the Chinese positioning in the main areas of energy and natural resources, beyond bilateral cooperation, as it has been analyzed here, and it constitutes an important asset difficult to dismantle.

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References

Altomonte, H.; Sánchez, R. J. 2016. Hacia una nueva gobernanza de los recursos naturales en América Latina y el Caribe. Libros de la CEPAL, N° 139.

Álvarez, A.; Barrenengoa, A.; Melón, D.; Bilmes, J. 2024. "Un puente y mucho más que dos orillas": Las inversiones chinas en infraestructura regional y sus consecuencias socioterritoriales. El segundo puente Chaco-Corrientes en el marco del Corredor Bioceánico del Eje Capricornio (2022-2023). En: L. Ghiotto, R. Pascual (Comps.). Estudios críticos sobre tratados de comercio e inversión en América Latina y el Caribe (pp. 399-463). CLACSO, Buenos Aires.

Bian, L.; Dikau, S.; Miller, H.; Pierfederici, R.; Stern, N.; Ward, B. 2024. China's role in accelerating the global energy transition. Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science.

Bilmes, J. 2023. Renacionalización híbrida de YPF (2012-2015): : tensiones y disputas por el desarrollo y la autonomía nacional. Cuadernos De Economía Crítica, 9(18), 133-155.

Bilmes, J. 2025. Cooperación Argentina-China en energía y recursos naturales. En: S. Schulz, F. Battaglino & G. Molinari (comps.). Construyendo una Comunidad Humana de Futuro Compartido entre China y América Latina. Ponencias presentadas en el 3° Congreso Latinoamericano de Estudios Chinos. Documentos de Trabajo Nffl 33, Instituto de Relaciones Internacionales, Universidad Nacional de La Plata, Argentina.

Bilmes, J.; Carbel, A.; Liaudat, S. 2022. Resurgimiento de la planificación del desarrollo en Argentina: logros, limitaciones y aprendizajes

de la experiencia kirchnerista (2003-2015). En: M. Patrouilleau & J. Albarracín Deker (Coords.). Prospectiva y estudios del futuro: Epistemologías y experiencias en América Latina. CIDES – UMSA, La Paz.

Bilmes, J.; Fuentes, P.; Castañeda, S. 2025. El litio suramericano en la geopolítica de los minerales críticos. En: G. Merino & L. Morgenfeld (Coords.). Nuestra América, Estados Unidos y China: transición geopolítica del sistema mundial. CLACSO – Batalla de Ideas, Buenos Aires/La Plata.

Blinder, D.; Vila Seoane, M. 2023. Presiones estadounidenses a la cooperación tecnológica con China: el caso del sector nuclear de Argentina. Relaciones Internacionales, (53), 91–110.

Bustelo, S.; Rubiolo, F. 2023. Hoja de ruta para una integración sustentable entre Argentina y China. Fundar, Buenos Aires.

Cao, T.; Lyu, Y.; Chen, X.; Yan, J.; Liu, W. 2020. China-Latin America Belt and Road Cooperation: challenges and paths for in-depth progress. China International Studies 84, 107-127.

DangDai. 2023. Todos los proyectos de inversión china en Argentina. Primera revista de intercambio cultural Argentina-China. N° 37(XIII).

ECLAC. 2023. International Trade Outlook for Latin America and the Caribbean, 2023. Economic Commission for Latin America and the Caribbean. LC/PUB.2023/16-P/Rev.1.

FARN. 2022. ¿Cuál es el rol de los actores chinos en la infraestructura de hidrocarburos argentina? Fundación Ambiente y Recursos Naturales.

Fernández, V. R.; González Jáuregui, J.; Merino, G. E. 2023. Latin America and China's Belt and Road Initiative: challenges and proposals from a Latin American perspective. AUSTRAL: Brazilian Journal of Strategy & International Relations, 12(23).

Gilbert, J.; Tobias, M. April 4°, 2024. Giving Up China Is Hard, Even for Argentina's Anarcho-Capitalist. Bloomberg. https://www.batimes.com.ar/news/economy/giving-up-china-is-hard-even-for-argentinas-anarcho-capitalist.phtml

González Jáuregui, J. 2021. How Argentina has encouraged Chinese investors to contribute to the revitalization of its energy sector. Carnegie Endowment for International Peace.

González Jáuregui, J. 2024. Chinese investments in Argentina's lithium sector: Economic development implications amid global competition. The Extractive Industries and Society, Volume 20, 101551.

Gunder Frank, A. 1967. El desarrollo del subdesarrollo. Pensamiento Crítico, La Habana, N° 7.

Haro Sly, M. 2023. Anarcho-Capitalism, Argentina between the IMF and China. Phenomenal World.

Hurtado, D.; Haro Sly, M. J. 2023. Hacia la convergencia de trayectorias en ciencia y tecnología que se bifurcan: desafíos de la cooperación de Argentina y China. En: M. V. Andrés (Ed.). Argentina-China. 50 años de relaciones diplomáticas. Cooperación, desarrollo y futuro. Fundación Germán Abdala.

International Energy Agency. 2021. The Role of Critical Minerals in Clean Energy Transitions.

Juste, S. 2024. La estrategia multinivel de China y las agendas paradiplómaticas en Argentina en torno a la transición energética (2014-2023). CONfines 20(38), 43-64.

Kataishi, R.; Brixner, C. 2023. Entre lo exógeno y lo exótico: las periferias, los supuestos económicos sobre Ciencia, Tecnología e Innovación y sus implicancias para el desarrollo tecno-productivo. Ensayos de Economía 33(62): 77-99.

Katz, J. 2021. La teoría dominante en Economía y el capitalismo periférico. Documento de trabajo N° 9, Consejo para el Cambio Estructural – Ministerio de Desarrollo Productivo, República Argentina.

Lewkowicz, J. March 15°, 2022. Can Argentina's Belt and Road membership accelerate its energy transition? Dialogue Earth. https://dialogue.earth/en/energy/51880-argentina-belt-and-road-china-membership-energy-transition/

Lewkowicz, J. March 4°, 2024. Where next for Argentina-China relations? Dialogue Earth. https://dialogue.earth/en/business/390353-where-next-for-argentina-china-relations/

Martins, C. E. 2020. Dependency, Neoliberalism and Globalization in Latin America. Haymarket.

Merino, G. E.; Regueiro Bello, L.; Iglecias, W. T. (coords.). 2022. China y el nuevo mapa de poder mundial: una perspectiva desde América Latina. CLACSO.

Merino, G. E.; Barrenengoa, A.; Bilmes, J. 2024. China en el (des)orden mundial. La transición histórico-espacial y el nuevo momento geopolítico desde una perspectiva latinoamericana. Batalla de Ideas.

Moretti, L.; Fernández, V. R. 2022. La lógica geopolítica del Estado chino y la Iniciativa de la Franja y la Ruta en la Argentina. Revista de Ciencias

Sociales, segunda época, Nffl 42, 135-158.

Myllyvirta, L. January 25°, 2024. Analysis: Clean energy was top driver of China's economic growth in 2023. Carbon Brief. https://www.carbonbrief.org/analysis-clean-energy-was-top-driver-of-chinas-economic-growth-in-2023/

Nedopil, C. 2023. China Belt and Road Initiative (BRI) Investment Report 2023 H1 – the first ten years. Green Finance & Development Center, FISF Fudan University, Shanghai.

Nesci, A. March 10°, 2024. Diálogo con el director chino del Centro "La Franja y la Ruta" en la Argentina. Página 12. https://www.pagina12.com.ar/719384-no-se-trata-de-pelearse-con-el-mercado-sino-de-saber-donde-p

Núñez, J. 2020. Entre el umbral fósil y las nuevas energías: un acercamiento al estudio del comportamiento de los capitales chinos en el mercado energético argentino. e-l@tina. Revista electrónica de estudios latinoamericanos, 19(73).

Observatorio China. 2023a. En Cont@cto CHINA N° 179. Instituto de Estrategia Internacional, Cámara de Exportadores de la República Argentina.

Observatorio China. 2023b. En Cont@cto CHINA N° 182. Instituto de Estrategia Internacional, Cámara de Exportadores de la República Argentina.

Oviedo, E. D. 2023. Relaciones internacionales en tiempos de ascenso chino y declive argentino. Areté Grupo Editor.

Povse, M.; Pedrosa, F. 2023. El financiamiento soberano chino en Argentina: lecciones para fortalecer la cooperación bilateral. En: M. V. Andrés (Ed.). Argentina-China. 50 años de relaciones diplomáticas. Cooperación, desarrollo y futuro. Fundación Germán Abdala.

Rozengardt, M. 2023. El encuentro. Gestión de la política internacional subnacional entre Argentina y China. En: M. V. Andrés (Ed.). Argentina-China. 50 años de relaciones diplomáticas. Cooperación, desarrollo y futuro. Fundación Germán Abdala.

Sales, J. C. 2023. La Cooperación Internacional al Desarrollo de China en América Latina y el Caribe. Estrategias de acción y política exterior. En: R. Domínguez Martín & G. Lo Brutto (coords). La cooperación internacional en la encrucijada: reglobalización versus órdenes mundiales solapados. Ed. Universidad Cantabria.

Salgado Rodrigues, B. 2021. China's Hybrid Geoeconomics in South

America. Chinese Journal of International Review, Vol. 2, No. 2, 2050007.

Schteingart, D. 2017. Especialización productiva, capacidades tecnológicas y desarrollo económico: trayectorias nacionales comparadas y análisis del caso noruego desde mediados del siglo XX. Tesis doctoral. Universidad Nacional de San Martín, Argentina.

Secretaría de Minería. 2023. Participación de capitales chinos en Argentina. Ministerio de Economía, República Argentina.

Svampa, M.; Slipak, A. 2018. America Latina between old and new dependences, the role of China in inter-hegemonic dispute. Hérodote, 71(4), 153-166.

Sztulwark, D. 2020. La condición periférica en el nuevo capitalismo. Problemas del desarrollo, 51(200).

The Economist. April 10°, 2024. Chinese green technologies are pouring into Latin America. https://www.economist.com/the-americas/2024/04/10/chinese-green-technologies-are-pouring-into-latin-america

Treacy, M. 2023. Cooperación y dependencia en la relación bilateral de China y Argentina: un análisis de los préstamos y las inversiones chinas en el contexto de la adhesión a la Iniciativa de la Franja y la Ruta. Perspectivas. Revista De Ciencias Sociales, 7(14), 414–437.

Vaca Narvaja, S. 2024. Atento al camino. Crónicas en China. Ed. Futurock.

ABSTRACT

The aim of this article is to analyze the outstanding role that energy and natural resources play in the increasing relationship between China and Argentina to inquire what type of development is outlined. These topics have a central role in terms of the bilateral trade balance, investment, funding and around cooperation mechanisms, due to the Argentine bet to build new export complexes and Chinese needs for its energy and supply security. Oil and gas, mining and different types of energy generation are analyzed: nuclear, hydroelectric, solar and wind, highlighting Chinese firms positioning as well as bilateral cooperation agreements, its obstacles and challenges.

KEYWORDS

Development, Geopolitics, Energy Transition

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