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Chapter 8

China's Activities in the Petroleum, Renewable Energy, and Transmission Sectors of Latin America and the Caribbean

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INTRODUCTION

In July 2015, as Chinese oilfield operations in the Orinoco tar belt languished amidst the deepening crisis in Venezuela, the massive Chinese electric utility company State Grid won a contract with the Brazilian government to build a \$2.2 billion, 2,500 km electricity transmission line connecting the giant Belo Monte hydroelectric facility in the state of Para, with the city of Rio de Janeiro, in the southeast of the country.² The contract, the second won by the firm in support of Belo Monte, highlights how Chinese companies are expanding their presence across Latin America and the Caribbean, in the transmission and renewable energy generation sectors, as well as in petroleum. In the process, Chinese energy engagement with the region has fundamentally changed the energy matrix of Latin America and the Caribbean, the business dynamics of the sector, and the politics of the countries involved.

The entry of the PRC into the energy sector in Latin American and Caribbean is a subset of its expanding engagement globally. As a product of more than thirty-five years of sustained high rates of GDP growth, the PRC is increasingly unable to obtain, from its own territory and region, the energy resources that it needs to support the demands of both manufacturing and consumer activity, particularly given China's focus on export-oriented manufacturing activity as the principal engine for its economic growth and diversification.

On one hand, as growing demand for both electricity and transportation fuels has outstripped domestic resources, the PRC's three state-owned

petroleum companies, China National Petroleum Corporation (CNPC), Sinopec, and China National Offshore Oil Corporation (CNOOC), have each sought to acquire interest in a growing quantity of upstream assets abroad to meet forecast future demand.

In doing so, they have been empowered by Chinese government policy, beginning with the “go out” (*Zhōuchūqū Zhànliè*) strategy, adopted in 2002 as part of the 10th five-year plan of the Chinese Communist Party. The “go out” plan signaled the official blessing of the Chinese government, and thus gave political cover for Chinese petroleum and other energy firms to follow the imperatives of their businesses and develop expanded international relationships and investment positions to obtain access to the resources abroad, at reasonable prices, required for China’s continued economic expansion and diversification.

In a similar fashion, the enormous pollution produced by China’s growing manufacturing activity, and the generation of electricity from of fossil fuels to support it, helped the state to privilege the development of clean energy, including hydroelectric, wind, and solar, as strategic sectors whose growth in capacity and technology terms, was to be supported, both in the PRC and through activities abroad.

By its nature, the building of clean energy capacity is both construction intensive and capital intensive, creating work for Chinese companies, and opportunities for Chinese banks to lend their surplus capital for projects abroad, in ways consistent with the objectives of the Chinese state.

China highlighted the importance of energy cooperation as part of its engagement with Latin America in its November 2008 Policy White Paper on its relationship toward the region.³ It reinforced such emphasis in its five-year roadmap for developing relations with Latin America and the Caribbean, agreed to at, and produced following, the China-CELAC summit in Beijing in January 2015.⁴ Indeed, in that roadmap, energy cooperation was one of six “focus areas” for the relationship.

For the PRC, energy engagement in the Americas has had both a *political* and an *economic* character. Chinese investments to develop oilfields, loans for hydroelectric and other alternative energy projects, and funds for other projects tied to oil deliveries have been promoted as vehicles through which Chinese engagement was promoting development of the region as a model of “win-win” “south-south,” relations. In doing so, such investments have provided nations of the region (particularly those opposed to influence of the US, multilateral financial organizations, and Western companies), with the resources and alternatives to pursue a more independent policy line.

On the other hand, through such initiatives, Chinese companies have also benefited from expanded access to oil, development of clean energy technologies that can also be used in the PRC itself, a profitable site for collocating

billions of dollars in loans and investments, while sustaining a “multi-polar” political environment in the region that neither structurally or politically disposed against doing business with China.

In each sector, the use of local partners, both for helping to manage the projects, and to provide access to technology, has been important, albeit in different ways. With respect to petroleum, Chinese companies arguably partnered with firms to provide access to needed technologies, such as deepwater drilling, while in the alternative energy sector, partners provided product technologies such as that for turbines and solar panels.

Although Chinese companies had been doing business with and developing ties to Latin America and the Caribbean for almost two decades, Chinese investment in projects in the region, and the associated physical presence there by Chinese companies only began to take-off after 2009.⁵

The dynamics of Chinese engagement in the petroleum sector were very different from that in alternative energy and electricity transmission, including the nature of market entry, the relationship with local partners, and the specific challenges involved. The interaction also varied with respect to each country in which the Chinese engaged, depending on the nature of the political relationship between China and the host country, and the degree of state involvement in the sector.

In general, the new physical presence by Chinese companies was a fundamental change in the nature of their activities in the sector, which created a host of new challenges for the companies, as well as for the Chinese government.

The Chinese companies involved had to deal with a host of issues associated with both market entry and managing complex operations in a new environment. The challenges of market entry issues included securing government and stockholder approval of mergers and acquisitions sometimes used to acquire a position in the sector, particularly in the petroleum and electricity transmission sectors. It also included winning bids for projects, which presented a particular challenge for Chinese companies in mature markets with capable, experienced, and established competitors in countries such as Chile, Colombia, Brazil, and Mexico. Chinese firms also have had to wrestle with approvals for projects by Latin American and Caribbean host governments, particularly in the hydroelectric and power transmission sectors, as well as working with those governments with respect to the expropriation of land to be used for the project, as well as environmental impacts, and the balance between local versus Chinese labor to be used.

On the operational side, Chinese companies have faced challenges arising from managing local labor forces, relations with local governments and the community, and security issues. They have struggled to integrate Chinese managers, technicians, and workers with local counterparts, within the

framework of local laws, and amidst challenges from rival companies who were not contracted for the work, or local laborers who were not hired as hoped.

The nature of Chinese projects in petroleum, hydroelectric, wind, solar, and energy transmission, by nature, has also forced Chinese companies operating in the region to confront a range of security challenges to their personnel and operations, from violent acts by protesters and striking workers, to kidnapping and robberies of Chinese personnel, to extortion threats by criminal and terrorist groups active in the areas in which the Chinese are operating.

While such challenges from operating in the region have long been faced by non-Chinese multinational companies, the combination of language and cultural barriers and the lack of experience by most PRC-based companies operating in the region have created opportunities for challenges to expand into major conflicts.

For its part, the Chinese government had to wrestle with the question of how, and under what circumstances, to use the nation's growing influence, to advance or defend the interests of Chinese companies, and to protect Chinese operations and workers, within the context of China's long asserted principle of noninterference in the affairs of other countries.

Petroleum

Chinese companies had a modest presence in the Latin American petroleum sector since the late 1990s, including operations by CNPC in Venezuela since 1997, in the Intercampo blocks,⁶ and in Peru since 1999, with CNPC winning a concession there to operate the Talara oilfield.⁷ CNPC also made an important advance in the region in 2003 when it acquired a 45 percent interest in the Latin American subsidiary of the Spanish company PlusPetrol for \$200 million,⁸ giving it a seat at the table with respect to important oil operations in Peru, but without the exposure to the public, or asset management responsibilities that it would have had as the majority stakeholder.

The first significant Chinese acquisition of a majority position in a Latin American oil operation arguably occurred in 2005, with the acquisition by CNPC of the Ecuadorian assets of the Canadian oil firm EnCana. The acquisition was followed by a series of smaller ventures by Chinese oil companies in the Andean region, including the purchase in 2006 of the firm Omimex (with operations in Colombia) as a joint venture by the Chinese oil company CNPC and its Indian counterpart ONGC Videsh.⁹ Similarly, in 2008, Sinochem acquired Emerald Energy, expanding the Chinese presence in the Colombian oil sector.¹⁰

While these actions gave PRC-based firms some equity stake in Latin American petroleum operations, the defining advance for China occurred in

2010–12, with more than \$15 billion in China-backed petroleum sector acquisitions, concentrated on Argentina and Brazil. These included the purchase by Sinopec of a 40 percent interest in the Brazilian holdings of the Spanish company Repsol, injecting \$7.1 billion into the company's operations there,¹¹ the \$3.1 billion acquisition by Sinochem of an interest in the Brazilian holdings of the Norwegian company Statoil,¹² the March 2010 acquisition by CNOC of the assets of Bidas in Argentina for \$3.1 billion,¹³ and Sinopec's \$2.4 billion purchase of Occidental Petroleum, announced in December of the same year.¹⁴

The momentum of acquisitions by Chinese companies in the Latin American petroleum sector continued with Repsol's sale of its Ecuadorian operations to Sinopec, announced in August 2012,¹⁵ adding to the substantial position already held in the country by the Chinese "Andes Petroleum" consortium. By 2015, a quarter of all Ecuadorian oil production was in the hands of Chinese companies.¹⁶

The most significant of such acquisitions to date has been CNOOC's \$15.1 billion purchase, in 2013, of the Canadian oil company Nexsen, giving it control over oil assets in Colombia and elsewhere in the region.¹⁷ It was also this purchase that gave CNOOC a seat at the table in Nexsen's partnership with Exxon Mobil which discovered significant quantities of petroleum in the waters of Guyana's continental shelf, disputed by Venezuela.¹⁸

Chinese companies also continued to acquire interest through purchasing minority stakes in companies operating in the region, including Sinochem purchasing a 10 percent interest in the Brazilian holdings of the French company Perenco,¹⁹ and Sinopec's March 2012 acquisition of a 30 percent stake in the Netherlands-based company Galp Energy, for \$4.8 billion.²⁰

Chinese companies have also expanded existing operations in politically friendly countries, including a May 2008 agreement between the Venezuelan government and CNPC, finalized in May 2010, to develop the heavy oil of the Junin-4 block in Venezuela's Orinoco tar belt.²¹ The agreement was later followed by commitments from Chinese companies to Venezuela's "Bolivarian Socialist" government to work together on the Junin 1 and Junin 10 blocks.²²

In Brazil, following a \$10 billion loan to Petrobras in 2009, Chinese companies began to expand their participation in the development of that nation's substantial oil resources, including the difficult to access offshore "sub-salt" oilfields. Most prominently, in October 2013, CNPC and CNODC (China Southern Petroleum Exploration and Development Corporation) each won a 10 percent stake in the development of the Libra oilfield, with the required investment from all partners to extract the 2 billion barrels of recoverable oil estimated to be \$200 billion.²³ In the process, the deal highlighted the advancing capabilities and confidence of Chinese companies in the sector, not only participating in competitive bidding processes in competitive oil markets, but

also moving from acquiring fields with proven oil reserves, to participating in more risky and technologically demanding, but more potentially more lucrative, exploration and development activities.

Beyond drilling and exploration, Chinese firms have also sold drilling rigs to Latin American governments, and leased oil platforms for use in the region. In one project, for example, the PRC sold forty rigs to the Venezuelan national oil company PdVSA in a project that was to eventually transfer production of the rigs to PdVSA. Chinese companies similarly sold oil rigs to the Bolivian firm YPFB in January 2013,²⁴ and in January 2012 leased one of its offshore platforms to the Italian oil company Eni, to drill for oil off the Western coast of Cuba,²⁵ although it reportedly never found a commercially recoverable quantity of petroleum there.²⁶

Chinese companies have also entered into ventures to build or upgrade refineries in the region, although their success, to date, has been limited. Negotiations by PRC-based firms to perform \$6 billion of upgrade work on Cuba's Cienfuegos refinery,²⁷ for example, never came to fruition.²⁸ Similarly, the attempt by CNPC, in partnership with the Costa Rican national oil organization Recope, to expand and modernize that nation's principal refinery near Moin was blocked multiple times by the Costa Rican government because of alleged improprieties involving CNPC's use of one of its own subcontractor, HQCEC, to conduct the cost-benefit analysis for the facility.²⁹ A Chinese attempt to help its Venezuelan partner, PdVSA, to finance the Abreu-e-Lima refinery in Pernambuco, Brazil, fell through when Venezuela could not produce the funding for its part of the project, eventually leading Petrobras (which had initiated the project with PdVSA) to pursue construction of the refinery alone. Negotiations between the Ecuadoran government and CNPC to invest in the Refinery of the Pacific, near Manta,³⁰ languished for years until the Ecuadoran government acknowledged that CNPC was no longer interested; although in August 2015, a Chinese construction company, Sinomach, expressed interest in financing the \$10.5 billion initial cost of the project.³¹

In the petroleum sector, as in other energy sectors, and with the Chinese presence more generally, the entrance of PRC companies into the sector has also been followed by Chinese subcontractors, including oil service companies Kerui, CPEB Engineering, Jereh, HQCEC, and Great Wall Drilling, among others, although the success of these companies in extending their services beyond PRC-based companies to other clients in the region has thus far been limited.

Chinese petroleum companies have also used loans from associated banks to win and deepen their presence in the countries in which they operate, albeit in a manner different than they have done in the alternative energy and electricity transmission sectors.

On one hand, in a loosely coordinated process between the state, banks, and petroleum companies, Chinese banks have offered loans to Latin American state oil companies, attempting, with mixed success, to open the door for other relationships. PRC's \$10 billion loan to Petrobras in 2009, for example, arguably helped to ingratiate the Chinese with the Brazilian company, and created opportunities for Chinese national oil companies to deepen their understanding of the Brazilian market, in support of later bids for specific fields, or in their evaluation of companies operating in Brazil for subsequent acquisitions. Such tactics have not always been successful, however. In Mexico, in 2014, the Chinese offered to loan \$2.4 billion to the Mexican national oil company Pemex,³² yet in the end, Chinese companies were not favored as participants in the weakly subscribed "Round One" auction for new oilfields.

In Venezuela and Ecuador, the close political relationship with the PRC at the state level facilitated arrangements linking loans from Chinese banks to oil deliveries, strengthening Chinese access to the petroleum of those markets in a different way. In both countries, Loan funds were established with Chinese institutions for the financing of infrastructure projects, and for the purchase of Chinese products and services by the state, repaid through parallel contracts in which oil pumped from Chinese operations in the respective countries, was sold to Chinese brokers in repayment of the loan. In this fashion, the loan funds not only strengthened Chinese access to the oil in those countries, but simultaneously, the oil held in Chinese hands served as a form of security to offset the risk of providing loans in Ecuador and Venezuela as relatively high risk countries.

From their entry, Chinese firms have faced numerous serious challenges in both entering the Latin American petroleum sector, and with operating in the region. In November 2011, CNOOC abandoned its \$7.1 billion bid to acquire Pan American Energy, allegedly because of concerns regarding treatment by the Argentine government of firms in the sector.³³ The acquisition would have been the largest acquisition ever by a Chinese company at the time. Multiple other announced acquisitions have similarly failed to come to fruition, including negotiations in May 2013 for the purchase by CNPC of Barra Energy, with substantial oil holdings in Brazil, in a deal with a potential value of \$2 billion.³⁴

As noted previously, Chinese petroleum operations in the region have also been repeatedly assaulted by both protesters and terrorist groups. Little more than a year after the Chinese consortium Andes petroleum acquired the oilfield and pipeline assets of the company EnCana, in Ecuador, an Andes-operated oilfield near the Ecuadoran town of Tarapoa was taken over by protesters, who held some forty workers there hostage for two weeks, and shut down operations at the field.³⁵ Less than a year later, in Orellana, Ecuador, the petroleum operations of the Chinese company Petroriental were blocked by

radicals upset over the failure of the Chinese company to hire the expected number of local workers, and its treatment of the local community in other manners. When the Ecuadoran police arrived to break the blockade, they were ambushed by locals with weapons, setting in motion violence that eventually resulted in the deaths of more than thirty people and the declaration by the national government of a state of emergency in the region.³⁶

In 2011, the operations of Emerald Energy (acquired by Sinochem in 2008) in Caquetá, Colombia, came under repeated threats and subsequently attacks from the terrorist organizations operating there, the FARC and the ELN, culminating in the kidnapping of three Chinese oil workers.³⁷

Clean Energy

By contrast to the use of mergers and acquisitions by Chinese companies to enter the Latin American petroleum sector, the corresponding Chinese entry into the clean energy sector has principally occurred through winning individual bids, or participation in approved private investments, often in conjunction with local partners.

It is a little recognized fact that such activities, enabled by the combination of long-term financing under favorable conditions, low-cost project execution by Chinese firms, and low-cost Chinese components, are transforming the composition of electricity generation in Latin America and the Caribbean.³⁸

The largest Chinese push into alternative energy in Latin America initially occurred through the building of hydroelectric facilities, mostly in Ecuador. These projects, in their essence, have principally been construction projects, funded by loans from China Development Bank and other PRC-based financial institutions, with the work performed by Chinese companies, with some complement of Chinese laborers and subcontractors.

One of the first such projects was construction of the Coca Coda Sinclair hydroelectric facility in eastern Ecuador (between the provinces of Napo and Sucumbíos). The project was temporarily derailed when Ecuadorian president Rafael Correa suspended negotiations with the Chinese for almost four months due to his disagreement over the Chinese demand for sovereign guarantees of loan repayment from the Ecuadoran government in order to fund construction. Yet in 2011 the \$2.2 billion project was approved, with 85 percent financing from China Development Bank, and execution by the Chinese company Sinohydro.³⁹ The initiation of Coca Coda Sinclair was followed by the award for construction of the smaller \$672 million Sopladora hydroelectric facility to the Chinese Gezhouba Group, with \$571 in financing from China Development Bank.⁴⁰

In parallel with these efforts, in 2010, the Ecuadoran government contracted China Water and Electric (CWE), in conjunction with the Russian

firm Inter Rao UES, to complete the Toachi-Pilatón hydroelectric facility,⁴¹ left incomplete in September 2008 when the Ecuadoran government terminated the contract of the Brazilian firm Odebrecht, amidst a high-profile dispute over its execution of the project.⁴²

The Ecuadoran government has also contracted to the Chinese for a number of smaller hydroelectric projects. These include the 96 MW, \$101 million Termoesmeraldas II thermoelectric plant and the 270 MW, \$506 million Minas San Francisco facility (both awarded to Harbin Electric), the 115 MW, \$477 million Delsitanisagua facility in Zamora-Chinchi (awarded to Hydrochina), the 21 MW, \$45.5 million Mazar Dudas project, and the 50 MW Quijos facilities, contracted to China National Electric Engineering Company.

In general, the majority of Chinese hydroelectric projects which have gone forward to date, have occurred in countries politically sympathetic to the PRC, and who have been willing, to some degree to adapt established public procurement processes to the state-to-state approach preferred by the Chinese. Notable examples beyond Ecuador include two hydroelectric facilities in Venezuela: El Chorrin, in the east of the country near Guyana,⁴³ and the Manuel Piar hydroelectric center⁴⁴ associated with Venezuela's Guri dam.

Beyond Ecuador, in October 2014, the PRC and Argentina signed a contract for the construction of two hydroelectric facilities in that country, on the Santa Cruz River: the Nestor Kirchner hydroelectric facility in Condor Cliff, and the Jorge Cepernic hydroelectric facility in La Barrancosa, with a combined electricity generation capacity of 1.74 GW. As of July 2015, China Development Bank had disbursed \$437 million of \$4.77 billion in committed financing for the project, in order to do the preliminary infrastructure and site preparation work on the facilities,⁴⁵ although the work reportedly has experienced significant delays.

Largely out of the public limelight, a number of smaller hydroelectric projects in countries of the region, less overtly sympathetic toward the PRC, have also advanced in recent years, with the work to be done and funded by PRC-based companies. Examples include the proposed Ston Dansi hydropower facility on the Nickerte River in Suriname,⁴⁶ the 7 MW Chalillo River⁴⁷ and 18 MW Vaca projects in Belize (both constructed by Sinohydro),⁴⁸ the 104 MW Patuca III facility⁴⁹ and the 22 MW Aqua Zarcá hydroelectric facility in Honduras.⁵⁰ Of note, neither Belize nor Honduras diplomatically recognizes the PRC, yet PRC-based companies have nonetheless been able to win important work in both in recent years. Similarly, in Paraguay, whose government also does not recognize the PRC, Chinese firms have reportedly approached the government of Horacio Cartes to discuss a hydroelectric project that would augment the generation potential of the Yacyretá, hydropower facility, one of the nation's largest.⁵¹

Despite the long list of initiatives, in the hydroelectric sector, as in other loan-backed infrastructure projects, Chinese companies have had as many failures as successes. Notable examples include Sinohydro's loss of its bid to construct the Hidroituango hydroelectric facility in the department of Antioquia, Colombia,⁵² the collapse of the Amaila Falls hydroelectric project in Guyana,⁵³ and the inability of Hydrochina to win work for the 400 MW Rositas hydroelectric facility in Bolivia despite performing an initial, self-funded study for the Bolivian government to help take the project forward,⁵⁴ although the latter reportedly still being pursued by the Chinese, with the announcement of a \$7 billion Chinese line of credit for Bolivia in October 2015 that included the project.⁵⁵

Beyond hydroelectric facilities, Chinese firms have made also important advances in wind and solar energy projects in the region. The largest such initiative in the region, to date, is a \$900 million venture by the firm China Sky Solar for solar generation facilities in the Atacama Desert in the north of Chile.⁵⁶ The project is notable not only for its size, but also because, in the largely free-market Chilean energy sector, such infrastructure is not contracted by the Chilean state, but rather, by private investors, who inject their own money to create generation capacity, that can then be sold to the Chilean electrical grid.

Numerous wind power projects involving Chinese companies and products have also been realized across the region. These include the 16.5 MW, \$41.8 million Villonaco wind farm in Loja, Ecuador, constructed in 2012 by the Chinese company Goldwind,⁵⁷ as well as a 21 MW facility in Tarija, Ecuador, completed in January 2014 by the Chinese firm Sinomach.⁵⁸ In addition, the Sinovel Wind Group constructed a wind farm in Brazil,⁵⁹ and in Chile, China Goldwind is constructing two wind farms: a 34.5 MW at Negrette Cuel, in the southern district of BioBio,⁶⁰ and the 240 MW Ckani facility in Antofagasta.⁶¹ PRC-based firms are additionally constructing two wind facilities in the province of Chubut, Argentina: a massive 1,350 MW, \$3.5 billion wind farm called "Gastre," built by Beijing Construction and Engineering Group,⁶² and the 100 MW, \$261 million "Loma Blanca" facility whose turbines are supplied by the Xiangtan-based company XEMX Windpower Co.⁶³

In both the solar and wind sector, a key factor enabling such China-backed projects to go forward is the price. The Chinese offer generally includes components which are less expensive than that of their competitors, as well as long-term financing, which together brings the cost per kilowatt hour to levels competitive with fossil fuel-powered facilities, making possible a range of projects that otherwise would not have been economically feasible.

Particularly with respect to wind and solar, but also for hydroelectric facilities, a key role is played by local business partners, who often help the Chinese, both to meet the legal requirements to set up their projects in

the country as well as to navigate through the complex hurdles associated with the government or private sector regulatory, environmental, and other requirements.

For wind and solar projects, the locally connected partner often plays a key role in bringing in the Chinese company into the project as an equipment provider, generally with Chinese financing. In Chubut, Argentina, for example, the Geassa group (Gemdon eólica Argentina del Sur SA) contracted with the Chinese producer, Xiangtan, to supply wind turbines for the Gastre wind farm,⁶⁴ with financing by China Development Bank. Similarly, the Spanish firm Isolux Corsan contracted XEMX Windpower (also from Xiangtan) to construct turbines for the "Loma Blanca" facility, with financing from both the China Development Bank, and the Corporación Andino de Fomento.⁶⁵ In Chile, the Irish technology company Mainstream is the lead for the project in which China Goldwind will provide the turbines, with financing from China Development Bank.⁶⁶ In Honduras, the lead role for the Patuca III hydroelectric project was the Honduran national power company, Empresa Nacional Energía Eléctrica (ENEE),⁶⁷ although the majority of the work was actually done by Sinohydro.

Finally, in 2015, China secured a commitment to enter Latin America's nuclear energy sector, signing an agreement in September for the construction of a \$6 billion, 800 MW CANDU-6 heavy water reactor at the Atucha nuclear complex in Argentina.⁶⁸

It is interesting to note that, with the exception of Chinese construction of the Jaguar thermoelectric facility in Guatemala⁶⁹ and some projects in Venezuela, Chinese companies have generally not engaged in the construction of fossil fuel generation facilities in the region.

As with their activities in the Latin American and Caribbean petroleum sector, Chinese alternative energy projects in the region have been impeded by multiple obstacles, generally centering on government regulations, labor issues, and environmental compliance.

A key challenge affecting Chinese projects to date, as noted previously, has been the acquisition of land for hydroelectric facilities. Both the Aqua Zarca and the Patuca III projects in Honduras were significantly delayed, for example, because local residents did not want to accept initially offered levels of government compensation to sell and leave their land. In the case of Patuca III, the protesters turned to violence, with the Honduran military forced to deploy to protect the Chinese operation from threats made against the project and the workers.⁷⁰ Despite such protection, the company was forced to suspend operations in June 2013 because of the violence.⁷¹

In Ecuador, work on the Coca Coda Sinclair facility was delayed by labor unrest,⁷² as well as by a serious accident killing twelve and injuring thirteen in December 2014.⁷³

In Guyana, the Amaila Falls project collapsed when the political balance of power in the country changed after that country's 2011 parliamentary elections, causing the prime contractor on the project, Sythe Global, to doubt the government's commitment to the project, and to pull out.⁷⁴

Transmission

Although related to electricity generation, the dynamics and challenges of the transmission business in Latin America and China's entry into it are sufficiently distinct from the generation business itself to warrant discussion as a separate section.

Chinese companies entered the electricity transmission sector in Latin America roughly at the same time as they entered the generation business, but in a fashion that more closely resembled their manner of entering the region's petroleum sector. In 2010, the Chinese firm State Grid, the principal electric utility company for all of the PRC, invested \$1 billion to acquire seven power transmission facilities in Brazil, owned by the Spanish company ACS.⁷⁵ Following the acquisition, State Grid began to expand its position in the country, to include buying a 39 percent stake in the Brazilian power company Neoenergia, from the Spanish firm Iberdola.⁷⁶ According to its own calculations, from entering Brazil in 2010 through the end of 2015, State Grid invested over \$2.5 billion in the country, and plans to invest another \$4 billion by 2020.⁷⁷

With its new presence in the country, State Grid began to bid on a series of contracts for transmission lines, with its crowning achievement being to win the contract, noted in the introduction, to construct a \$2.2 billion, 2,500 kilometer transmission line connecting the enormous new Belo Monte hydroelectric facility to the national power grid using its newly developed Ultra-High Voltage (UHV) transmission technology, the first time it had been used outside of the PRC.⁷⁸

While State Grid was the largest Chinese entrant in the transmission market, it has not been the only one. The company China Technical Import Export Corporation (CTIEC), for example, won an important contract in Guyana to upgrade the electricity transmission facility in that country.⁷⁹

To date, the challenges for Chinese companies of operating in the transmission sector in Latin America have principally involved contracting with the government and the environmental impact of projects. State Grid's participation in the Belo Monte project, for example, was held up in March 2015 because it wanted to import 11,000 Chinese workers into the country to perform the work.⁸⁰ The environmental impact of the line's transversal of environmentally sensitive amazon jungle region was similarly questioned by project opponents.

Outlook

The growing sophistication and capabilities of Chinese companies and their substantial financial backing make it probable that Chinese advances in the energy sectors of Latin America and the Caribbean will continue in both the petroleum sector, as well as in renewables and electricity transmission. Yet the combination of obstacles to Chinese projects, as well as the current slowing of the Chinese economy, suggests that such advances will be uneven, at best.

In the petroleum sector, as the growth of Chinese manufacturing slows, and projected demand for petroleum by Chinese customers weakens, its firms in Latin America and elsewhere abroad may begin to postpone mergers and acquisitions to buy oil assets, as well as investments to explore and exploit oilfields under their control where the terms of their concessions permit doing so. Weakening petroleum demand is likely to delay progress on already problematic China-backed refinery projects for similar reasons, including both those in the region, and those in China, such as the CNPC-PdVSA joint venture in Guangdong, for the refining of oil obtained from the region.⁸¹

On the other hand, as the Chinese economy slows, opportunities for commercially viable construction projects, and other places for Chinese banks to invest their capital within the PRC itself will shrink, even as weakening Chinese bank balance sheets, filled with nonperforming loans, create pressure to find safe destinations for their capital, offering attractive rates of return. In such a scenario, Chinese banks and construction firms, and Chinese product companies in the hydroelectric, wind, and solar sectors may actually accelerate their push to invest abroad, including Latin America and the Caribbean, particularly where such investments facilitate the winning of construction and service contracts, and the selling of products in the region by Chinese companies.⁸²

The success of such a push will be limited, and its adverse political impacts magnified, by the previously mentioned linguistic, cultural, and other barriers that have contributed to the difficulties of PRC-based companies in both market entry and operations management in the region. Yet through such engagement, the Chinese will also continue to learn to make better choices with respect to assessing risks and managing challenges, from politically welcoming yet dysfunctional environments such as Venezuela, to mature markets with a labyrinth of sophisticated competitors such as Mexico, Chile, Brazil, and Colombia.

Thanks in part to Chinese financing, investment, and operations on the ground in Latin America and the Caribbean, the region will likely produce both more oil and gas, and more renewable energy over the next decade than it otherwise would. It is not clear, however, whether the region will be more prosperous, or will have a more positive relationship with the PRC, as a result.

NOTES

1. Dr. Evan Ellis is Research Professor of Latin American Studies with the Strategic Studies Institute of the U.S. Army War College. The views expressed in this article are strictly his own.
2. Marcelo Teixeira and Luciano Costa, "Update 1-China's state grid to build Brazil's longest power line," *Reuters*, July 17, 2015, <http://www.reuters.com/article/2015/07/17/brazil-power-auction-idUSL2N0ZX0P420150717>.
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