



Artículo Resultado de Investigación

# China-Brazil technical cooperation: An analysis of the Incorporation Movements of the State Grid Corporation in the Brazilian Energy Sector

Cooperación técnica entre China y Brasil: Un análisis de los movimientos de inserción de la State Grid Corporation en el sector energético brasileño

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## Resumen

Estructurado en la metodología del *Process Tracing*, este artículo analiza la cooperación técnica entre China y Brasil en materia energética, después de la primera década de los años 2000. A través de una revisión teórica de la literatura y un análisis documental, esta investigación presenta algunos conceptos importantes para comprender la evolución y aproximación de la relación sino-brasileña hasta mediados del nuevo milenio, exponiendo algunos antecedentes de esta asociación discutida por el estigma de la cooperación sur - sur. Posteriormente, el estudio profundiza en la historia de la cooperación técnica en el sector energético, mostrando características centrales de esta interacción y posibles intereses mutuos entre China y Brasil. El artículo concluye con una reflexión relacionada con algunos desafíos y oportunidades de cooperación observados en el sector, discutidos a partir del análisis de la inserción de la *State Grid Corporation* en el sector energético brasileño entre 2010 y 2016.

**Palabras clave:** Cooperación Sur - Sur, Cooperación Técnica, Relaciones China - Brasil, Sector Energético.

## Abstract

Structured on the methodology of *Process Tracing*, this article analyzes the China – Brazil technical cooperation in energy matters, after the first decade of the 2000s. Through a theoretical literature review and a documentary analysis, this research begins by presenting important concepts to understand the evolution and approximation of the Sino-Brazilian relationship until the middle of the new millennium, exposing some background of this partnership discussed by the stigma of the South - South cooperation. The study follows with a deepening about the history of technical cooperation in the energy sector, showing central characteristics of this interaction and possible mutual interests between China and Brazil. The article concludes with a reflection related to some challenges and cooperation opportunities observed in the sector, discussed from the analysis of the insertion of the *State Grid Corporation* in the Brazilian energy sector between 2010 and 2016.

**Keywords:** South - South Cooperation, Technical Cooperation, China - Brazil Relations, Energy Sector.

## I. Introduction

Celebrated on August 15th, 1974, the Joint Communiqué on the Establishment of Diplomatic Relations between the Federative Republic of Brazil and the People's Republic of China (Ministry of Foreign Affairs of Brazil<sup>1</sup> [MRE, in portuguese], 1974) marks the resumption of a partnership that has evolved and deepened, influencing policies and behaviors of both countries within the international system.

Encouraged by the political pragmatism of the governments Geisel and Figueiredo (Pinheiro, 1993) and by the gradual transition of the leadership from Mao Zedong to Deng Xiaoping (Fairbank & Goldman, 2006), the rapprochement between the two nations represented the emergence of new stimuli and possibilities for cooperation and overcoming various challenges to the developmental aspirations of each nation.

In Brazil, the new relationship benefited the basis for a progressive reduction of the direct dependence of the Brazilian economy on US capital and promoted a modest advance in the process of improving the national productive structure linked to the implementation of the II National Development Plan.

In China, the cooperation favored an increase in the recognition of the Chinese government's legitimacy in the international society and assisted the process of formulation and implementation of new bilateral projects necessary to improve the infrastructure and competitiveness of Chinese production over the technological advances in the international arena.

After more than four decades of this event, new dynamics have been transforming China-

Brazil cooperation, altering old positions and values previously observed in this interaction, as for example their understandings on the ideas of national development and international technical cooperation, but also their conduction of international policies to the insertion of their economies over the world.

With the intensification of trade, financial and technological flows in the world, the new international arrangements begin to reinforce a new reality present within the international system. Crossing beyond geographical, technological, structural and cultural boundaries, the global economy is consolidating itself in three central characteristics: productions at global scales, building of networks, and seek to inform<sup>2</sup> (Castells, 2005).

These factors have made the current cycles of public policy of the States and their international relations much more complex. With the increasing speed of sharing of information and resources between societies and the shortening of trade and financial borders between the domestic and international spheres, the direction of public policies has been strongly influenced by the greater interconnection of the domestic and foreign interests in national territory (Lentner, 2006).

The increased interdependence between national economies and transnational actors, as well between the public and private sectors, has resulted in a greater complexity and sensitivity of the States act in the conduction of their national policies, especially in the formulating, implementing and evaluating phases of the political cycles (Stopford, Strange, & Henley, 1991).

<sup>2</sup> Based on Castells (2005: 119), one of the three characteristics of the global economy is the reliance and need of nations and enterprises to build capacities to efficiently generate, process and apply knowledge-based information.

<sup>1</sup> Ministério das Relações Exteriores.

Related to this, government efforts are beginning to focus more on encouraging and facilitating the internationalization of domestic enterprises in global value chains, making international cooperation in the new Millennium a cooperative and competitive activity among States in the international system (Stopford *et al.*, 1991; Guedes, 2006).

The model of vertical cooperation, hierarchical and reserved exclusively for the exchange of information and financing, is gradually being replaced by models more like horizontal and in solidarity with the sharing of experiences and aid for the collective advancement of developing nations.

These characteristics, however, still incite questionable readings about the real natures of this kind of “complementary” and “disinterested” interactions among nations.

A case that arouses curiosity and became the focus of analysis in the course of this work is related to the issue of technical cooperation between China and Brazil in the energy sector.

Between the second half of the 2000s, a strong Chinese investment growth is observed in the Brazilian energy sector, especially in the Southeast and South regions (China - Brazil Business Council<sup>3</sup> [CECB, in portuguese], 2013). This event, however, is followed by a sharp drop in the number of projects signed between the countries as of 2010 and an unexpected process of acquiring assets of Brazilian companies by a Chinese company in 2015.

This phenomenon stimulates the production of this research, which is directed to understand what factors may have caused this change of position and behavior in the Brazilian and

Chinese parts throughout the period from 2010 to 2016?

In order to analyze this question, we opted for the use of Process Tracing (Henriques, Leite, & Teixeira, 2015), characterized by its analytical, inductive and deductive, richness, but also by the possibility of observing and understanding alternative variables existing within the causal relations studied, allowing the construction of new explanations for the events in this phenomenon.

In this sense, through an initial literature review, a documentary analysis and the application of the approach proposed by Stopford *et al.* (1991) on the idea of triangular diplomacy. The article discusses the evolution of Technical Cooperation between the two countries in the energy sector, seeking to identify probable factors that justify the oscillations mentioned above.

In order to do so, four hypotheses were constructed, influenced by the works of Castells (2005)<sup>4</sup> and Dunning and Lundan (2008)<sup>5</sup>, which will be evaluated and contrasted in the course of the work, being these:

H1: The changing behavior of these countries in technical cooperation in the energy sector is related to the increase in conflicts of interest between the Brazilian government and the Chinese government in the years 2010 to 2016.

<sup>4</sup> In his work, Castells discusses the idea of global economy and its influence on the behavior of States and companies inserted in the new value chains.

<sup>5</sup> In their work, Dunning and Lundan argue the search for resources and markets as a factor for the advancement of internationalization of companies and investments in the international system.

<sup>3</sup> Conselho Empresarial China – Brasil.

H2: The changing behavior of these countries in technical cooperation in the energy sector is related to the increase in conflicts of interest between Brazilian companies and Chinese companies in the years 2010 to 2016.

H3: The changing behavior of countries in technical cooperation in the energy sector is related to the reduction of economic incentives given by the Brazilian and Chinese governments between the years 2010 and 2016.

H4: The changing behavior of countries in technical cooperation in the energy sector is related to the change in the type of interactions between the years 2010 and 2016.

Within this aspect, it should be emphasized that the relation between the hypotheses can be complementary. That is, the hypotheses do not refute the chance of simultaneity since they were established in order to ascertain which factors may have played a greater relevance to the occurrence of oscillation of data behavior and in the analysis of the chosen case.

To do so, the case of the acquisition of assets of CPFL Energia, a Brazilian company, by the State Grid Corporation, a company of Chinese origin, is analyzed, discussing some of its possible effects on the Brazilian energy sector.

In this way, the study is structured beyond this introductory topic, a brief description of the relationship between China and Brazil in the energy sector, followed by the results of the case study.

Both, the history of technical cooperation between China and Brazil in energy matters and the case, are related to the period between 2000 and 2016, being their analysis done through the study of the reports and official

documents available, like the memoranda celebrates by those countries.

It should be recognized, however, that one of the limitations present in this work has been linked to its exploratory content; so that although the interactions analyzed in the following case point to the formation of a new kind of unidirectional relationship between the two countries, the research still lacks sufficient criteria to delimit a degree of asymmetry between the two nations within the studied interactions, demanding by future works for its complementation.

## **II. History of China – Brazil technical cooperation in the energy sector**

As explained earlier, this topic is about the history of China - Brazil technical cooperation in the energy sector. Its organization was constructed in order to discuss two issues relevant to the understanding of the proposed. The first is an initial theoretical-conceptual reflection on the ideas of international cooperation, public policies and triangular diplomacy. The last, is a documentary rescue about the evolution of Sino-Brazilian energy cooperation since the 2000s.

### **A. Theoretical and conceptual reflections on the ideas of international cooperation, public policy, and triangular diplomacy**

Perhaps one of the most emblematic concepts in the field of applied social sciences today is the idea of the meaning of “development” within international relations.

Quoting Sumner & Tribe (2008: 9), the ambiguity and complexity surrounding the delimitation of this concept encourage believing it as a “form of change” dependent on the values and alternatives employed during its conceptualization process.

On the basis of the post-World War II period, the understanding of “development” was largely related to the acceptance of the existence of a continuous spectrum in which societies and States would be diversified and organized according to their levels of “complexity” and “modernization” (Santos, 2005).

In the 1960’s and 1970’s, per example, the influences of ECLAC theorists, such as Prebisch (1949 as quoted in the Economic Commission for Latin America and the Caribbean (ECLAC), 2012), direct the debate and understanding of “development” to criticism and economic problems related to the poor adequacy of government policies to the realities and domestic needs of each underdeveloped nation.

In the 1980’s and 1990’s, the debate receives a new strength from with the neoliberal waves in Latin America, causing increases in trade and financial flows in the world to become more prominent within the field of study.

And, during the new Millennium, the debate reaches the peak of its diversity, ranging from perceptions and proposals such as those presented by Amartya Sen (1998) of development as “freedom” until the recent political-economic and entrepreneurial interpretations linked to idea of global economy and value chains proposed by Castells (2005), among others.

Despite this fact of impossibility to delimit a universally accepted concept of “development”, it’s possible to discuss and reflect the influence

of these ideas in the direction of international technical cooperation in these moments and the effect of these actions on the political behaviors of the contemporary States.

As mentioned earlier, during the context of the 1950s, the perception of “development” and hence of “developed” nations was strongly related to the processes of insertion and adaptation of States to a pre-established model of government within the international system.

This model, as criticized by Santos (2005) and Lancaster (2007), would be based on the adhesion of “underdeveloped” countries to democratic, liberal and Weberian ideologies and institutions considered as the apex of social representativeness and efficiency of state action within the international system.

This event becomes an interesting observation since from that period international technical cooperation begins to acquire a new meaning within the interstate interactions, shaping the behavior of the States within their processes of formulation and implementation of national public policies.

Cooperating, as Santos (2005) and Lancaster (2007) indicate, meant the possibility of absorbing new resources and technologies from foreign countries, allowing greater knowledge and advances in national productive and bureaucratic structures, normally related with north - south interactions.

On the other hand, as those authors argue, it also meant legitimize a form of hierarchical interaction more receptive and favorable to Western capitalist institutions and values within the context of the Cold War. Not necessarily representing transformations or changes in the international division of labor.

Over the decades and the reduction of the stimuli provided by “developed” nations

to “underdeveloped” economies, the vertical cooperation style, discussed above, begins to lose influence and participation within the bilateral and multilateral interactions of States at the international level (Santos, 2005).

Specifically, during the second half of the 1970s and early 1980s, successive financial crises in Latin America and increasing international instability forced developing countries to seek new alternatives for international technical cooperation as a way to break the dependency and vulnerability of their economies to the capitals and foreign interests in their territory (Milani, 2012; Souza *et al.*, 2014).

Only in the transition of the new Millennium, however, does a new form of international cooperation, more egalitarian and solidary among nations, arise within the international system, commonly referred to as the south - south interactions (Milani, 2012).

Its main singularity, as described by Souza *et al.* (2014), would be the understanding of the existence of a horizontal hierarchy between the participating nations in the international interactions. Reflecting a reciprocal recognition of the States about the symmetry of the importance their interests and values, but also their burdens and responsibilities.

In this sense, this type of cooperation would be marked by a progressive reduction of the conditionalities imposed by the partners for the expansion of collective development and the exchange of financing, aid, and information among their economies (Santos, 2005).

This reduction of conditionalities would also imply a process of deepening the insertion of foreign companies in domestic territory and the internationalization of domestic companies around the world, conditioning international technical cooperation to a kind of triangular

diplomacy involving relations and interests observed in interactions of the type State - State, States – Companies, and Companies - Companies, leading public policies and State actions to two new realities faced by all nations in the new Millennium (Castells, 2005; Stopford *et al.*, 1991).

The first is the increase in the complexity and interdependence of inter-state relations and their impact on the greater difficulty of delimiting problems of domestic origin and external origin (Lentner, 2006).

The second is the greater need of articulation of the governments with the private actors for the consolidation of new mechanisms of reinforcement and incentive to the development of the national economy within the present global economy (Stopford *et al.*, 1991).

These effects, as will be discussed below, are important for the understanding of the current situation of concurrent competition and cooperation, present in the case of Sino-Brazilian technical cooperation in the energy sector.

## **B. Incentives and challenges of Sino-Brazilian energy cooperation in 2000's**

As indicated in Chart 01, made through the collection and analysis of official documents available by the System of International Acts of the MRE, between 1974 and 2016, 121 official documents were signed between the two countries.

Of these 121 observations, four moments are more prominent within the Sino-Brazilian relationship, three of which are prior to the 2000's and one subsequent to this period.

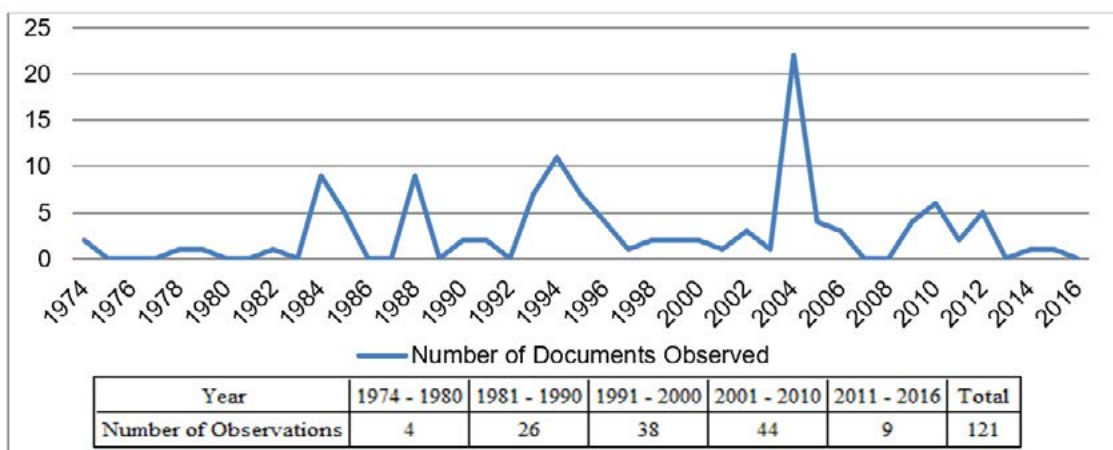
The first two correspond to the years 1984 and 1988, each registering, respectively, nine official documents signed between China and Brazil.

These periods are relevant because they have concentrated important agreements between the two countries, showing a preliminary overview of technical cooperation linked to the promotion of policies and joint investments in the improvement of strategic

segments for both, among them: steel (MRE, 1984; MRE, 1985a), geoscience (MRE, 1985b), and the hydroelectric sector (MRE, 1988a).

The last moment of the most significant concentration of the partnership, before the new Millennium is indicated in 1994, with eleven documents found and related to more specific topics for the consolidation and instrumental delimitation of technical cooperation between the two governments.

**Chart 1 - Evolution of the China - Brazil Partnership (1974 - 2016).**



**Source:** Based on data provided by the MRE (2017). Retrieved on June 10th, 2017, from <http://dai-mre.serpro.gov.br/>

Thus, cooperation in the energy sector is reinforced through the dissemination of memoranda of understanding between the Brazilian Ministry of Mines and Energy (MME) and the Ministry of Water Resources of China (MRE, 1994a; MRE, 1994b), of protocols of intent between MME and the Chinese Ministry of Chemical Industry (MRE, 1994c), and minutes of talks between the two States for the construction of the Three Gorges hydroelectric project in China (MRE, 1994d).

From the 2000's, however, some changes can be observed in the Chinese behavior towards Brazil, affecting the direction of its

domestic policies, its international positions and, consequently, the cooperation in the analyzed sector.

Through the Chinese insertion in the World Trade Organization in the middle of 2001, the Brazilian trade balance receives a massive reinforcement captured by the increase in the demand and the prices of the agricultural commodities in the international market.

As shown in Chart 02, during the first years of 2000, the almost inexistent commercial relationship between the two nations began to be altered by a dynamic and deep insertion of China in the Brazilian economy, which can

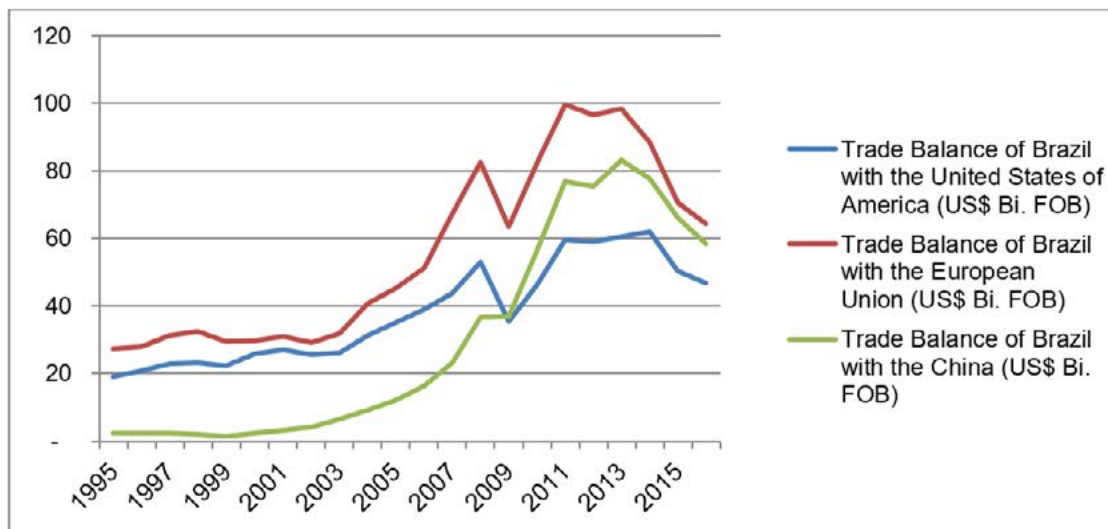


surpass the United States as Brazil's main commercial partner at the end of this decade.

Analogous to this event, during the same period, there was an inversion in the voluminous

trade balances between the two countries, contributing to the feeling of a positive and stable scenario in the Brazilian economy from mid-2008, as shown in Chart 03.

**Chart 2 - Evolution of Brazilian Trade (1995 - 2016).**



**Source:** Based on data provided by the MRE (2017). Retrieved on June 13th, 2017, from <http://www.aliceweb.mdic.gov.br/>

These factors are interesting when contrasted with political events found in the years 2004 to 2006, mainly with the celebration of the “Four Principles”, agreed by the presidents Luiz Inacio Lula da Silva and Hu Jintao (Lima, 2016).

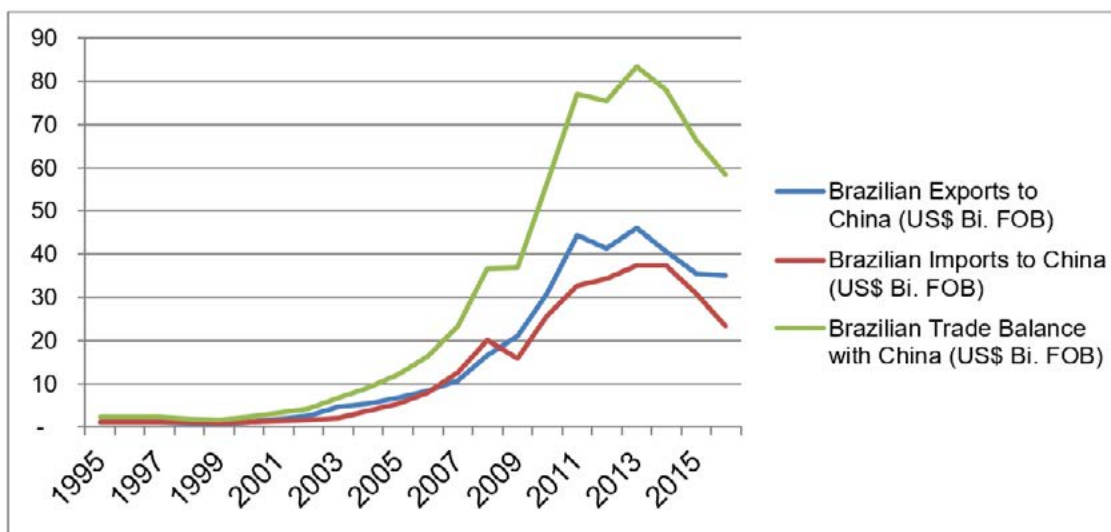
Underpinned by these “principles”, the governments would commit to maintaining four central focuses of bilateral cooperation: strengthening and deepening cooperation in all areas, promote the joint development of countries, encouraging social progress, and boost south - south cooperation (Lima, 2016).

Curiously, as already mentioned, the year 2004 also corresponds to the apex of the relationship between the two countries, concentrating twenty-two official documents celebrated by Chinese and Brazilian institutions

in the most diverse areas of interest and performance.

In the area of energy technical cooperation, specifically, two official documents stand out within the direction of Brazilian policies related to China.

Chart 3 - Evolution of Bilateral Trade China - Brazil (1995 - 2016).



**Source:** Based on data provided by the MRE (2017). Retrieved on June 13th, 2017, from <http://www.aliceweb.mdic.gov.br/>

The first refers to the memorandum of understanding on the establishment of the subcommittee on energy and mineral resources of the Sino-Brazilian Commission of High Level of Coordination and Cooperation<sup>6</sup> [COSBAN, in portuguese] between the MME of the Federative Republic of Brazil and the State Development and Reform Commission Of the People's Republic of China (MRE, 2006).

That proposes to conduct further bilateral reinforcements for cooperation in the energy, geology and mining sectors, conditioning the two nations to adopt more encouraging positions to the exchange of information and coordination of policies and actions between the private and state actors of both territories (MRE, 2006).

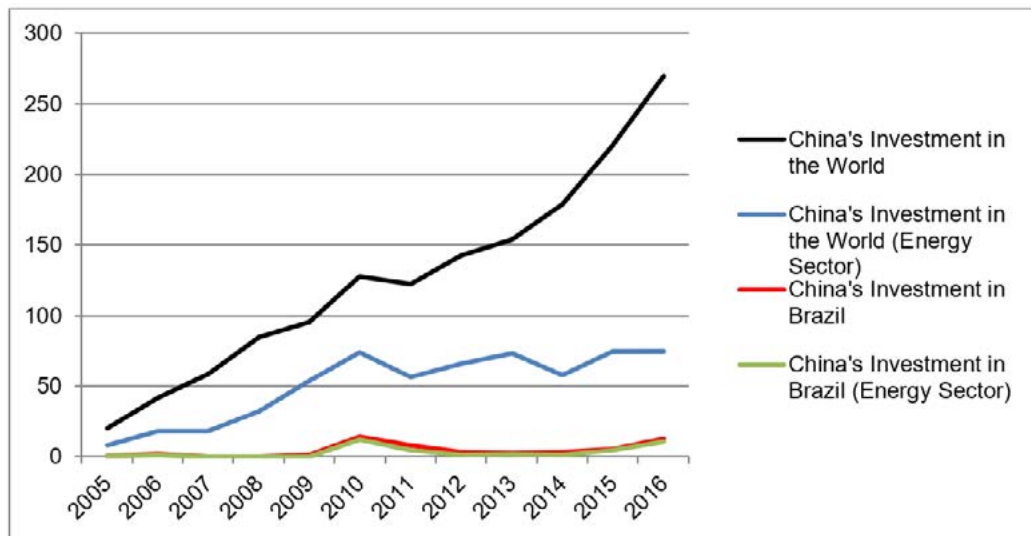
The second refers to the protocol between the government of the Federative Republic of Brazil and the government of the People's Republic of China on cooperation in energy and mining, related to the expansion and

diversification of future investment opportunities for Sino-Brazilian interactions in the energy and mining sector (MRE, 2009).

A phenomenon, however, not identified when analyzing the evolution of the flow of Chinese investments in Brazil and in the World since the second half of the 2000's, like shown in Chart 04.

<sup>6</sup> Comissão Sino-Brasileira de Alto Nível Concertação e Cooperação.

**Chart 4 - Chinese investments in the world (US \$ billion).**



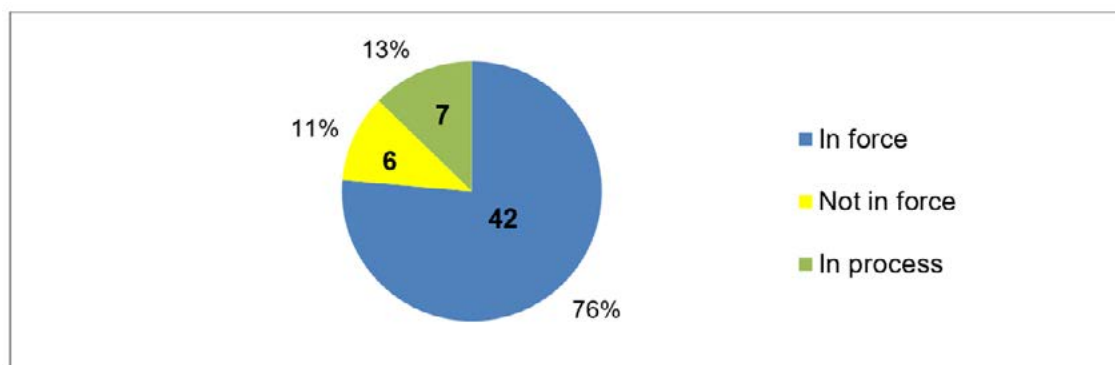
**Source:** Based on data provided by the American Enterprise Institute (2017). Retrieved on June 8th, 2017, from <http://www.aei.org/china-global-investment-tracker/>

Still based on the Chart above, it becomes possible to observe that the sharp concentration of Chinese capital within the Brazilian energy sector is not accompanied by proposals related to other fields of interest dealt with by the various agreements previously mentioned.

Similarly, as exposed by Chart 05, when verified the situation of the official documents

available by the MRE about the bilateral interactions of Brazil with China, only two documents in force within Brazilian territory are directly linked to the energy sector, an event that reinforces the importance of further analysis on the participation of these private companies in the phenomenon.

**Chart 5 - Status of Observed Documents (2000-2016).**



**Source:** Based on data provided by the MRE (2017). Retrieved on June 8th, 2017, from <http://dai-mre.serpro.gov.br/>

This event reinforces the perception of a possible inefficiency of the Brazilian government in consolidating a strategy capable

of the development of the sector; but also warns of a greater need for scholars and politicians to understand the new role played by private

companies in directing the recent phenomena that have been observed within the relationship of the two countries.

In the next topic, the effects of this type of triangular interactions on Sino-Brazilian technical cooperation in energy matters will be discussed in the case of the relation of the Brazilian company CPFL Energia and the Chinese enterprise State Grid Corporation.

### **III. Analysis of CPFL Energy – State Grid Corporation case**

A key factor in understanding the Chinese and Brazilian behavioral change in energy technical cooperation refers to the events that occurred in 2010 and its evolution to the acquisition of the assets of CPFL Energia by the State Grid Corporation in the middle of 2015.

This final topic addresses the events related to this interaction and its relevance to the future planning and conduction of Brazilian policies in the field of bilateral technical cooperation in energy matters.

Constructed through literature review and official documents, the following structure consists of three steps modeled in the Process Tracing method: the presentation of the case studied; the contraposition of the hypotheses with the observations found in the analysis; and the reflection on the possible effects of the case on the future interactions of the actors.

#### **A. The process of Chinese insertion in the Brazilian energy sector**

As discussed in the course of the previous topic, the second half of the 2000's corresponds to a scenario of political and economic changes

in the Sino-Brazilian relationship, as shown by the variation of the documents signed between the countries and their trade balance, Chart 01 and Chart 02, respectively.

In this period, trade and financial flows converge<sup>7</sup> with the international political interests of the two economies, influencing a process of deepening the rapprochement between the two nations, especially in strategic sectors such as chemicals, mining, geology, and energy<sup>8</sup>; which will be discussed in more detail in this topic<sup>9</sup>.

Before that, however, it is initially necessary to know the main actors involved in this case, its central problems in the field of energy technical cooperation and its relationship with the process of formulation, implementation, and conduction of national public policies.

Besides the two characters already presented in this paper, the Brazilian government and the Chinese government, two other agents gain prominence and significance for the analysis of the phenomenon discussed here. These are the State Grid Corporation of China and its subsidiary in Brazil, the State Grid Holding Brazil; and the Brazilian company CPFL Energia.

About CPFL Energia, it is important to understand some of its trajectory, interests, and performance in the Brazilian energy market.

<sup>7</sup> Despite the possibility of criticism, it was considered as convergent in terms of the content of the "Four Principles", concluded between the countries in 2004, as well as the evolution of trade flows (Chart 02) and investments (Chart 03) in the analyzed period.

<sup>8</sup> Although Foreign Direct Investment in China has been concentrated in the Sector of Production and Supply of Electricity, Gas, and Water in this period, the participation of Brazilian companies in this territory is almost inexpressive (see CONSELHO EMPRESARIAL CHINA-BRASIL, 2012).

<sup>9</sup> Like saw in official cooperation documents and protocols of intent such as the Joint Action Plan.

Mainly, its role as the largest private group of the electric sector in the national territory, a factor that allowed it to operate in the segments of service provision, distribution, transmission, generation and commercialization of energy within the country (CPFL Energia, 2016).

A second important component of CPFL Energia refers to the concentration of its participation in the Brazilian economy since the company is a leader in the distribution market in the Southeast and South regions, comprising 14.3% of the segment and 9.1 million customers in the states of São Paulo, Rio Grande do Sul, Minas Gerais and Paraná (CPFL Energia, 2016).

In the commercialization of energy, it occupies the lead in the free market, making up 14.1% of sales in the market to final consumers. While in energy generation it remains the third largest private company in the country, with portfolios with clean and renewable sources (CPFL Energia, 2016).

Regarding the State Grid Corporation, its origin is related to the approval of the Chinese State Council for the creation of a state holding company pilot at the end of 2002. This holding company could carry out investment operations authorized by the government, focusing on the construction of networks in the domestic territory as well as on the insertion and performance of the company in foreign regions (State Grid Corporation of China [SGCC], 2017).

Currently, the SGCC is considered a state-owned private enterprise of great magnitude for the Chinese economy and for the world, remaining as a crucial asset for energy security in the country by supplying approximately 1.1 billion individuals and 88% of Chinese territory (SGCC, 2017).

But also income, hiring about 1.72 million employees, inserted in operations active in 22 countries, among them Brazil.

Its main areas of research and investment are largely related to the Chinese government's pursuit and interest in new, safer, cleaner, more economical and sustainable sources of energy supply (SGCC, 2017), being the same, a world reference in technology of ultra-high tension and green energies, areas of interests of CPFL Energia (CPFL Energia, 2017).

Regarding the insertion of the company in Brazil, this event dates from the first half of 2010 with the first attempts to invest Chinese capital in non-Asian countries, resulting in the acquisition of seven Brazilian energy transmission companies and the consolidation of State Grid Brazil Holding on April 28, 2010, the headquarters of SGCC in Brazil (State Grid Brazil Holding, 2017).

In addition, since the beginning of this decade, SGCC has operated in twelve Brazilian states<sup>10</sup>, with 23 energy transmission concessionaires, 19 in full operation and four in the process of construction, totaling approximately 10 thousand kilometers of transmission lines in Brazil (State Grid Brazil Holding, 2017).

## B. Discussion and contraposition of hypotheses

Returning a bit to the theoretical reflection presented in this study, two effects were highlighted as a consequence of the new international dynamics.

The first linked to the increase in the quantity and speed of international flows exposes the weakness of States to build good public policies

<sup>10</sup> Bahia, Ceará, Goiás, Mato Grosso, Mato Grosso do Sul, Minas Gerais, Pará, Pernambuco, Piauí, Rio de Janeiro, São Paulo e Tocantins.

in the new millennium as the complexity and interdependence of these countries in their interstate relations progresses.

So that the same would also be associated with the greater difficulty of governments to identify the origins of their problems as domestic or international nature, as well to build actions capable of mitigating their impacts on society and the national economy.

The second is conditioned by the idea of the new global economy and its impact on the emergence of new dynamics and needs for dialogue between the state and private sectors.

With the intensifying of the diversification of international production, it has become essential for national companies to enter into global value chains influencing national governments to stimulate and reinforce projects that promote the internationalization of their interests through the actions of their domestic companies in the International system (Stopford *et al.*, 1991).

As both observations reflect the current cooperative and competitive scenario of the states and their economies in the world, the proposal of triangular diplomacy will be used to counter and evaluate the hypotheses constructed to understand the occurrence of this behavior change in the case analyzed in this work.

The first hypothesis evaluated considers the change of Chinese and Brazilian behavior within the technical energy cooperation as a result of the increase of conflicts of interest between the governments between the years of 2010 and 2016.

As presented previously in Chart 01, the period from 2010 to 2016 is a moment of low political dynamism within the Sino-Brazilian relationship, contrasting significantly with the euphoria scenario in the 2000's.

During the first decade of 2000's, 44 official documents can be identified within the Sino-Brazilian interaction, reducing to only nine, after 2011. Notwithstanding this phenomenon, when the content of these documents of the second decade of 2000's was deeply evaluated, the actions between the two countries receive a greater degree of complexity, making cooperation reach a broader dimension than in previous years.

Some examples that support this argument are the consolidation of three Final Acts of Plenary Sessions of COSBAN, the main deliberative body of this interaction, expanding the thematic axes of bilateral technical cooperation, among them, in the energy field (Lima, 2016).

Other relevant documents are mentioned in the Ten-Year Cooperation Plan between the governments of Brazil and China (MRE, 2012) and the Plan of Joint Action between those countries for 2015 - 2021 (MRE, 2015), aimed at strengthening cooperation and coordination between the two nations.

In addition, as shown in Chart 05, from the 53 official documents signed, only six are not in force in the Brazilian government and seven stays with the status of in process in the national territory. That is, 76% of the documents celebrated are in force in Brazil, only two, however, are directly linked to the energy area.

These factors are not sufficient to justify the change of behavior in the sector, leading to the evaluation of the second hypothesis, which treats the occurrence of the phenomenon as arising from the increase of conflicts of interest between Brazilian companies and Chinese enterprises during the defined context.

This interpretation is interesting because it distances itself from the state role as a

central agent of the direction of the technical cooperation between the countries and corroborates with a vision of greater impact and participation of the private sectors within the planning and direction of the domestic and international public policies.

As discussed earlier, the acceptance of the Chinese economy in the World Trade Organization in 2001 represents a frame of division between the precursor and post-2000 dynamics.

First, because China has impacted on rising demand for agricultural and mineral commodities in the world, strengthening international trade flows, benefiting a number of developing economies, as in the case of Brazil (Jenkins & Barbosa, 2012; Jenkins, 2015).

Second, because, by controlling its national productive strength, the Chinese economy is able to concentrate foreign investment and progressively internationalize its enterprises in the international environment, as shown in the case of the State Grid Corporation in 2002.

Third, because, by concentrating international resources and manipulating domestic production, China's actions incentive foreign companies to search their States to add value to their internationalization process, through reinforcing and encouraging active policies for their domestic sectors over the constraints and difficulties existing in the international scenario.

Within this third point, the second hypothesis is reinforced because just as business participation can act as a catalyst for cooperation; it can also limit or backspace actions initially agreed between nations.

In the same way, the type of participation can be changed once the relations gain new proportions, as the acquisition of assets

replacing the creation of new productive structure.

This fact can also be observed when the number of documents related to the interaction between the nations and their companies is reduced, but the few ones existing deal over diverse sectors and different types of operations. As can be seen in this case in which a single company carried out several asset acquisition operations in Brazil.

Therefore, the fall in the number of documents in the period does not guarantee an explanation for the complexity of the relations established between the countries.

Regarding the third hypothesis, the Chinese behavior change for the Brazilian energy sector would be related to the reduction of economic incentives given by the governments of these countries between the years 2010 and 2016.

Based on the reports of the CECB (2013), the flow of Chinese foreign direct investment (FDI) in the world would have risen from a margin of US\$ 4 billion in 1990 to US\$ 48 billion in 2009, managing to concentrate a stock of US\$ 230 billion in the late 2000's.

In Brazil, the Chinese FDI during this period totaled US\$ 255 million, approximately 3.5% of that invested by the Asian country in Latin America. While the FDI confirmed for 2010 was 9.5 billion dollars, 62.7% of total Chinese capital within Latin America (CECB, 2013).

As of 2011, however, a reduction of China's investment in Brazil occurs, impacting on the relationship between announced and confirmed values (CECB, 2013), but mainly, damaging the reception of Chinese capital in the Brazilian energy sector, which only begins to show signs of recovery in mid-2015 (see Chart 04).

From these observations the fourth hypothesis arises, related to the probable reason

why the perception of change of behavior of the countries is related to the change in the nature of the original interactions of the 2000's.

Checking the content of official documents during the period, it is noticeable that during the 2000's the focus themes of bilateral cooperation are on favorable and complementary fields of Brazilian public policies, promoting proposals for joint efforts in the formulation and coordination of Projects and investments in areas of public interest, such as social welfare, education, culture, and; mainly, infrastructure.

This type of positioning would be supported by a double Chinese benefit, achieved by investing its surplus capital in the Brazilian market: (i) the political support given by Brazil in the international arena and (ii) the commercial gains generated by the insertion of China's products and financing in the country.

These two characteristics of the interaction are relevant when evaluating the type of investments of Chinese origin in Brazil during the decade of 2000 and after 2010.

Analyzing CEBC's report (2013), it can be observed that the great concentration of Chinese investments in Brazil occurs through central state-owned enterprises<sup>11</sup> and are of the Greenfield<sup>12</sup> type. That is, they are still incipient projects that result in the construction of infrastructure and hiring of personnel in the receiving country, but which are submissive to the interests of the foreign country.

Also based on the report mentioned, between 2007 and 2012, of the 44 Chinese companies interested in investing in Brazil,

<sup>11</sup> State-owned enterprises are companies owned by the State and directly submissive to the control of the Union.

<sup>12</sup> Business term to designate initial investment modality, it requires the directing of capital for the construction of structure and acquisition of cash.

40% were of the central state type, 38% were from smaller state-owned companies, and 22% were privately-owned.

With regard to the 60 projects of admissions in the country identified by the report, 57% were Greenfield, 35% were Mergers and Acquisitions, and 8% were Joint Ventures<sup>13</sup>.

These data are crucial for understanding the current behavior change of the two countries, especially in the energy sector, the main target of investments in the period.

When reevaluated the evolution of bilateral cooperation in the energy sector from these data, strong evidence observed in the interactions of this period stimulate the confirmation tendency of the fourth hypothesis.

Firstly, by the middle of 2007, the flow of Chinese investment in Brazil was reduced (Chart 4), which corroborates the possibility that it has occurred due to the initial phase of insertion of Chinese companies in the Brazilian energy sector at that time.

Secondly, the creation of State Grid Brazil Holding in 2010 coincides with the investment and maturation period of the projects entered in the country, probably due to the performance of the State Grid Corporation in Brazil.

And third, with the acquisition of a stake in CPFL Energia by the State Grid Company in mid-2015, it is possible that a new phase of investment is taking place between the two countries. With, however, of a nature different from that found previously, since the necessary structure for the Chinese performance in the sector is already consolidated in Brazil.

This reflection corroborates the arguments presented in Castells (2005) and Dunning and

<sup>13</sup> A business term to designate an investment scheme that is a consortium, aims to initiate or carry out an economic activity of common interest.



Lundan (2008), reflecting a greater urgency for a better understanding of this type of current phenomenon in Sino-Brazilian interactions, implying a more detailed understanding of the movement of Chinese capital towards Latin America and towards Brazil.

That implies following more closely the modalities of entry of this investment, searching their nature as productive investments or financial investments. But also understanding the scope of the documents signed between Brazil and China, regarding investments, typology, and sectors, since the acquisition of financial assets indicates a different phase in the relationship between these countries (Harvey, 2015).

This becomes a warning to decision-makers about the importance of new care and attention within the processes of formulating and conducting national public policies, especially in those cases dependent and related to the performance of Chinese capital in productive sectors essential for the economy national.

#### IV. Final considerations

Through a descriptive and exploratory approach, based on the Process Tracing method, this article sought to investigate possible factors for the change of behavior and Sino-Brazilian position within the direction of bilateral technical cooperation in the energy sector between 2010 and 2016.

Based on the construction and evaluation of four hypotheses for the understanding of the phenomenon, the first part of the study consisted of an initial theoretical revision, which discusses some central concepts related to the ideas of “development” and international

technical cooperation as well as the influence of these conceptual interpretations on the current processes of formulation and conduction of national public policies.

Associated with this introductory discussion, the research addressed the current international dynamics linked to the idea of global economy. Which, according to Castells (2005), would be identified by its three central characteristics: the incentive to productions in global scales, the need to build networks, and the reliance of nations and companies on building capacities to efficiently generate, process and apply knowledge-based information.

The concept of “triangular diplomacy” proposed by Stopford, Strange & Henley (1991) was later discussed and proved to be relevant tool to the understanding of the analyzed phenomenon, since it allows an interesting reading of the operation of interstate, business and sector interactions, integrating public and private interests with national and international.

Through a bibliographical and documentary rescue, the hypotheses constructed were contrasted and evaluated with the historical evolution of technical cooperation and Sino-Brazilian interactions, estressed on the period from 1990 to 2016 and related to the case of CPFL Energia - State Grid Corporation in 2015.

With regard to the first hypothesis, directed to the explanation of the change of behavior of the countries in the technical energy cooperation due to the increase of conflict of interest between the Chinese and Brazilian governments in the period, it is noted that H1 can not be accepted since the reduction in the number of official documents observed in the period did not prove sufficient to explain the reasons for the behavior change of the actors after 2010.

Although only nine official documents were registered between 2010 and 2016, the increase in the depth and complexity exposed by the contents analyzed indicates a greater coordination and conciliation of interests in bilateral cooperation, which is reinforced by the observation of the documents signed between the two nations.

Concerning the second hypothesis, related to the increase of conflicts of interests between the companies of these countries, were analyzed the possible effects of the Chinese economy's acceptance in the World Trade Organization in 2001 and the internationalization of Chinese companies in the global economy at the beginning of the 2000's over the behavior of Brazilian companies in the period defined.

Although the events indicated an increase in the participation and influence of private companies in the direction of national domestic policies, it was also noticed that the performance of private companies in the bilateral interaction could play both a positive and negative character for the Brazilian relationship with China.

These events, however, were not observed for the interactions of the energy sector, lacking another explanation for the behavior change of the countries in the period.

The third hypothesis, on the other hand, argued that the change in behavior would be related to the reduction of economic incentives given by governments between the years 2010 and 2016, an argument that was initially accepted due to the sudden reduction of investments between countries at the end of 2000's.

Through a more detailed analysis of the nature of Chinese investments in Brazil and in the energy sector saw a new component in the relationship: the acquisition of domestic

companies.

This acquisition has as a characteristic the purchase of assets of existing companies reducing investment in new plants, hence the smallest number of operations.

However, the third hypothesis failed to justify the rapid advance of Chinese companies within the Brazilian energy sector, encouraging the construction of a fourth hypothesis consistent with a reading that the change in the behavior of the countries in the sector would result from a change in the Interactions between the years 2010 and 2016.

This argument presented a solid foundation when contrasted with the case of the insertion of the State Grid Corporation in Brazil and later with the creation of State Grid Brazil Holding in 2010.

These factors corroborated the ideas proposed by Dunning and Lundan (2008), reinforcing an understanding that the behavior change of the actors is a reflection of a possible change in the nature of the observed interactions evidenced by the purchase of the shareholding of the company CPFL Energia by State Grid Corporation in 2015.

In other words, the behavior of the Chinese company may reflect a Chinese search for resources and market search (Dunning and Lundan, 2008), manifesting itself in a scenario of new opportunities for international technical cooperation and the development of the Brazilian energy sector.

But also of risks for the country, since the possibility of the behavior of Chinese state-owned enterprises begin to reflect the country's own foreign policy towards its partners can impact on consequences such as: the increase in the external liabilities of these economies compared to China; the reduction

of the decision-making autonomy of some governments in the face of Chinese interests; and, in more extreme cases, the gradual loss of the sovereignty of these nations of strategic sectors acquired by Chinese capital.

Thus, despite the positive history of the Sino-Brazilian relationship of the 2000s, the current uncertainties in the direction of cooperation in the energy sector should serve as a stimulus and alert for Brazilian managers to study and follow the Chinese behavior in the country. The direction of the evolution of the partnership can impact on the direction that the national policies will have to be planned and conducted in the future.

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