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**FACULTY OF SOCIAL SCIENCES**  
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**The Rise of China in the Global Energy  
Governance: An analysis of China's  
International Energy Policy**

*Master thesis*

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## **Bibliographic note**

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## **Abstract**

As the world's largest energy consumer and producer, China is the leading player of the international energy arena. Among other important achievements, China has become the world's largest wind power market as well as largest producer of hydroelectricity and solar photovoltaic (PV) capacity.

In recent years China has been at the centre of almost every work stream within the International Energy Agency (IEA), and many other international energy organizations. This thesis aims to understand what role China can and will play in global energy governance by examining how its domestic energy context shapes the country's attitudes toward the multilateral, market and climate change aspects of global energy governance.

China's recent re-emergence has resulted in a significant increase in the global demand of commodities and is already having major impacts on the dynamics of global commodity markets. In the case of the global uranium market, we are at the very beginning of a new era in the global energy system. However, we can already observe interesting trends.

My research question will be, "How China's search for supplies changes and influences its role in the global energy governance?"

## **Keywords**

China, Energy Governance, Energy Security, Multilateral Agreements, Hegemon, Uranium, Energy Market.

**Range of thesis:** 58 pages, 17129 words, 110,942 symbols

## **Declaration of Authorship**

1. I hereby declare that I compiled this thesis independently, using only the listed resources and literature.
2. I hereby declare that all the sources and literature used have been properly cited.
3. I hereby declare that the thesis has not been used to obtain a different or the same degree.

Prague 31/07/2019

Piero Merlo

## **Acknowledgments**

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## **1. Topic and Research Goal**

The first Chinese investment in the African uranium market was made in 2007 by a state-owned nuclear company, CNNC, in Niger <sup>1</sup>. A few years later in 2012 another state-owned company the China General Nuclear Power Group (CGNPG), acquired the Husab Mine in Namibia, which became the single largest Chinese investment in Africa.<sup>2</sup>

The investment in Niger was broadly recognized as a failed integration of a Chinese company in an African country, while in Namibia Chinese investments have largely improved Namibian authority and economy.<sup>3</sup>

However, while Chinese investments in many Africa's resources, from oil to precious metals, has been documented and seems to follow a precise scheme, China's position in the extraction of uranium is not clear yet. That's mainly for two reasons, the first one is that uranium has several impacts on international and economic security due to its role in the development of nuclear weapons and nuclear energy.<sup>4</sup> Furthermore, most of the investigation that have been carried out tend to highlight how China gains from the relationship with African states while the repercussion on Africa is often negative.

This thesis aims to examine the Chinese multilateral energy cooperation policies for energy security. More specifically I will analyse China's investments in the uranium market and their subsequent effect on the Chinese energy security strategy. Until very recently, China's energy security strategy relied only on unilateral and bilateral agreements, such as foreign oil deals, pipeline construction, and national tanker fleet.<sup>5</sup> In 2015 China signed an agreement with the IEA (International Energy Agency) holding the first emergency response exercise in the history of the country.<sup>6</sup> This accord has been signed by the government in order to enhance China's energy security.

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<sup>1</sup>Peter Volberding and Jason Warner, China and uranium: Comparative possibilities for agency in statecraft in Niger and Namibia, China-Africa research initiative, N 11-2017, Johns Hopkins University.

<sup>2</sup> Ibid.

<sup>3</sup> Ibid.

<sup>4</sup> IBid.

<sup>5</sup> Roman Madaus, Understanding China's Energy Security Strategy, The Regionalist, institute for regional security.

<sup>6</sup> Ibid.

Since 2017 China is the world's largest oil consumer, and by 2030 its reliance on petroleum imports could reach the 80-90 % of the national needs<sup>7</sup>.

At the beginning of the 1990s Chinese enterprises, in particular oil companies, started going around the world trying to ensure petroleum supply. Nowadays those companies are spreading around the globe at an incredible rate. However, this strategy has turned out to be weak in assuring oil supplies, that's because Chinese foreign oil deals are insufficient to cover the internal demand, furthermore, China exhibited a limited capability to control those enterprises<sup>8</sup>. Thereby, despite all the efforts that China is making to diversify its oil import, such as the construction of pipelines, will remain dependent on tankers. Although these unilateral and bilateral agreements, China remains, and it will remain, dependent on oil imports, and it has barely decreased its exposure to a great oil supply shock.<sup>10</sup>

On top of that, 45% of all the oil consumption of China flows through the Malacca strait, which represents a potential vulnerability. Several events may eventually pose a threat to the trade flow passing through the Malacca strait, terrorist attack or more likely a US embargo<sup>9</sup>. Has been argued that whoever control the strait of Malacca controls china's oil security and the inability to control the strait would be catastrophic for Chinese national security. <sup>12</sup> But this is not the only threat to china's energy supply, the increasing naval capacity of India might pose a menace to Chinese hegemony in the Indian ocean , Beijing is also afraid about Japan and the capabilities of the Japanese Maritime Self-Defence Force (JMSDF).<sup>13</sup> Malacca will remain a main oil shipping passage due to the cost of using different itineraries such as the Lombok strait or circumnavigating Australia.

The Chinese government seems to have realised the problem, that's why it is now participating always in more activities with the International Energy Agency (IEA). The collaboration between Beijing and the IEA is very recent,

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<sup>7</sup> Ibid.

<sup>8</sup> Ibid.

<sup>9</sup> Ibid.

<sup>10</sup> Ibid.

<sup>11</sup> Andrew Erickson and Gabe Collins, Beijing's Energy Security Strategy: The Significance of a Chinese State-Owned Tanker Fleet,

<sup>12</sup> Ibid.

<sup>13</sup> Ibid.

before 2015 China never engaged in international procedures such as the Global Maritime Partnership Initiative and the 31-nation Combined Maritime Forces.<sup>14</sup> Both these activities aimed to increase maritime security, but the Chinese government decided to conduct its autonomous counter-piracy operation. In 2015 China, together with Indonesia and Thailand, became an association countries of the IEA. Those countries can enjoy assistance from the IEA such as training, data sharing, capacity-building, and coordination in times of oil supply disruption.<sup>15</sup> In the last years the Chinese government started integrating the IEA in the coordination of its Strategic Petroleum Reserve (SPR), in order to test the level of preparation in case of a supply shock.<sup>16</sup> Furthermore, China held an emergency exercise in 2015 in one of its SPR with the supervision of the IEA. This was the first time that the Chinese government allowed the energy agency such a deep look into one of their facility.

In this scenario the Chinese government is trying to find alternative sources of energy supply, moving as fast as possible to renewable energy, becoming leaders in solar, implementing the electrification of their automobile sector and they are developing their nuclear sector in a very massive way. China currently have 37 nuclear reactors in operation, and they are building 20 more new reactors, almost doubling their nuclear capacity. Chinese goal is to increase it is nuclear capability from today's 2% to 6% in 2020, nuclear energy is going to become a crucial part of the energy mix. Therefore, the key question is: where will China get the uranium from? The answer is from Africa, in particular from Niger and Namibia. Furthermore, Africa might play a new interesting role as a possible customer for Chinese nuclear reactors.

## **2. Theoretical Context**

The combination of ambiguity of the investment in the uranium market together with the impact that Chinese enterprises have on each African country, will guide

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<sup>14</sup> Roman Madaus, Understanding China's Energy Security Strategy, The Regionalist institute for regional security.

<sup>15</sup> Ibid.

<sup>16</sup> Ibid.

my research question. More specifically I will focus on the uranium industries of the two largest African producing countries, Namibia and Niger.<sup>17</sup>

The two main categories on which I will analyse the impact of Chinese companies are economic repercussion and social repercussion. Related to economic issues I will focus on the consequences of the entrance into African uranium industries by Chinese enterprises on, the effective control of the resources (uranium), ability to negotiate the price of uranium with uranium enterprises, the capacity to set taxes on uranium extractors.<sup>18</sup> Regarding social issues, the biggest concerns are related to labour and environmental regulations.<sup>19</sup>

In order to answer these questions, we have to analyse the development of the uranium market in the two African countries. Niger and Namibia are respectively the first and the second uranium producing country in the African continent, and both rely heavily on revenues from uranium to fund their governments. In the late 2000s with the massive increase in the price of uranium, Chinese investors started to provide a great amount of money in the uranium sector in both countries.<sup>20</sup> However, despite the similarities of how and when Chinese enterprise entered the two markets there has been several differences in the outcome of the investments, both in economic and social components.

### **3. Research Questions**

How Chinese investments impacted the capability of Niger and Namibia to pursue economic objectives? Such as: The control of the uranium possessions, taxes regulations (over mining companies), price setting.

Furthermore, what kind of impact Chinese enterprises had on social issues? Such as: Labour regulation and environmental safeguard.

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<sup>17</sup> Peter Volberding and Jason Warner, China and uranium: Comparative possibilities for agency in statecraft in Niger and Namibia, China-Africa research initiative, N 11-2017, Johns Hopkins University.

<sup>18</sup> Ibid.

<sup>19</sup> Ibid.

<sup>20</sup> Ibid.

#### **4. Preliminary Thesis Structure**

1. Introduction
2. Methodology
3. What is Energy Security?
  - The Economics of Energy Security
4. China's Energy Security: Prospects, Challenges, And Opportunities
  - History and Development of China's Energy Policy
  - Low Carbon China
5. Sino-African Relations
  - Ensuring Energy Security
6. China and Uranium
  - (Brief) History of the Uranium Market
  - Case Studies, Niger and Namibia
7. Conclusion
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#### **5. Preliminary Bibliography**

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### 1) Introduction

This thesis aims to examine the Chinese quest for supply of energy resources and its engagement in the international energy system. More specifically, I will analyse how China's strategy has changed, leading it to become an emerging hegemon in the in global energy governance. In support of my hypothesis I will investigate China's investments in the African uranium market and how, in a relatively short time, Beijing has managed to become one of the major players in this energy commodity sector.

Until very recently, China's energy policy strategy relied only on unilateral and bilateral agreements, such as foreign oil deals, pipeline construction, and national tanker fleet.<sup>21</sup> The shift from outsider to insider of the international energy system has been made possible by China, among other things, thanks to the implementation of a multilateral approach. An example of this, is the 2015 agreement signed by Beijing with the IEA

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<sup>21</sup>Roman Madaus, "Understanding China's Energy Security Strategy", The Regionalist N 2, institute for regional security.

(International Energy Agency) holding the first emergency response exercise in the history of the country.<sup>22</sup> This accord has been signed by the government in order to enhance China's energy security.

In recent years the energy policy question of China has changed from a national challenge to a global debate. We have to keep in mind that the Chinese population is almost 20 percent of all the world's inhabitants and if the tendency of Chinese economy to grow at high rates persists, the consumption of energy will increase with it. Despite all its economic capacities, Beijing's dependency on imported oil, massive use of coal and its ambiguous renewables and nuclear policies present an enormous challenge for both the Chinese Communist Party (CCP) and the international community. This thesis will thus analyse how China has become one of the major players of the international energy governance in little more than two decades and indicate the effects of these developments.

Since 2017 China has been the world's largest oil consumer, and by 2030 its reliance on petroleum imports could reach 80-90 % of the national needs.<sup>23</sup> One of the key point of Chinese energy security strategy is securing liquid fuels, this is also due to China's extensive coal reserves and its restricted use of natural gas, in fact in 2010 China managed to be almost 80% self-sufficient in its energy needs, the rest was almost entirely constituted by oil imports. However, given this massive – and rising – dependence on liquid fuels, Chinese government is also highly motivated to find alternative sources of energy supply, moving as fast as possible to renewable energy, becoming leaders in the production of solar energy, implementing the electrification of the automobile sector and, last but definitely not least, developing the nuclear sector in a massive way. China currently operates 37 nuclear reactors, and it is building 20 more, thus almost doubling its nuclear capacity. Chinese goal is to increase its nuclear capability from today's 2% to 6% of the total share of energy output in 2020, thus making nuclear energy a crucial part of the energy mix.

China's attention has been redirected into the areas where it can trade its surplus of money for raw materials. For years its involvement in African, Middle Eastern and South American resource rich countries has generated many critiques, in the last two decades the energy security question became widely discussed topic both by academics,

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<sup>22</sup> Ibid.

media and politicians. The interest in China's energy consumption is logical, since its fast growth has resulted in a substantial increase in global demand of energy commodities. Regarding, specifically, the uranium market, China is a relatively new player in the sector, but there are some peculiar tendencies related to the Chinese investments in it. While Beijing has had difficulties in developing effective and working strategies in other commodity markets, it seems to have been more effective in managing its uranium strategy. This is mainly due to a combination of domestic and international variables that have allowed China to engage more effectively in the global uranium market and, more particularly, in the African one. On the domestic level a centralized industry, and on the international one an uncoordinated and a widely distributed geographically market.<sup>24</sup>

These variables highlight the complex nature of Chinese energy security and the strategy developed in order to emerge as an energy hegemon, that need to be taken into account and which will be examined in this thesis.

## 2) Conceptual Framework and Methodology

### Hegemonic Stability Theory: From Outsider to Insider

I will try to approach Chinese energy policy not only from one angle. As the title of this thesis suggests, I will provide an overview of China's engagement in the international energy system and demonstrate how this relatively new development has allowed Beijing to become a new hegemon in global energy governance. However, the development of this process is rather complex and involves many more actors than is apparent at first sight. In order to develop and support my arguments, I will use the hegemonic stability theory which may allow me to understand and analyse how Beijing energy policy is affecting China on the international energy governance. Which in my opinion is central for the understanding of China's energy policy and its change in strategy.

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<sup>23</sup> Ibid.

<sup>24</sup> Massot P, Chen Z-M, "China and the Global Uranium Market: Prospects for Peaceful Coexistence", Hindawi Publishing Corporation the Scientific World Journal Volume2 013.

Since my thesis will take in consideration Chinese commitment in the global energy governance, I will try to evaluate what are the economic, security and geopolitical consequences of such engagement, and to identify what are the key-drivers behind China's successful rise as a new *energy hegemon*. In order to be able to do so I will first try to establish the degree of relationship between China and the international energy system, and its evolving views and practices in global governance. The main issue is to understand whether a transition in global energy governance is happening or not.

There are at least two definitions that we can use in order to determine the concept of hegemony, the first one is from a Gramscian Perspective, according to which hegemony "refers to the acquiescence or consent of subordinate classes or countries to the dominance of the ruling class or power".<sup>25</sup> The second one implies a realist understanding of international hegemony as "those states that are able to set the rules of the game in international politics".<sup>26</sup>

However, the way China is engaging in the global energy commodity market is different from all the previous superpowers. Chinese strategy is based on the history and geography of the country in which they are involved, this form of hegemony differs from the classic understanding of global hegemony.<sup>27</sup> On one hand, China is carrying out several agreements on a bilateral and multilateral basis, that might make us think about a global hegemonic transition from the United States (U.S) to China, for the first time in over a century, in 2013 China has overtaken the U.S becoming the world's largest economy, measured in purchasing power.<sup>28</sup>

China is experiencing an extensive transformation to move the country to the centre of the international affairs. As the world's largest energy consumer (23% of global consumption) and largest energy producer (19% of global supply) in 2014, as well as the world's largest oil importer and carbon dioxide (CO<sub>2</sub>) emitter, the consequences of

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<sup>25</sup>Stephen Gill, Gramsci, Historical Materialism and International Relations: An Essay in Method 21–26 (1993).

<sup>26</sup> John J. Mearsheimer, Structural Realism, in *International Relations Theories: Discipline and Diversity* 71, 72.

<sup>27</sup> P'adraig Carmody & Ian Taylor, Flexigemony and Force in China's Resource Diplomacy in Africa: Sudan and Gambia Compared, 15 *GEOPOLITICS* 496, 510 (2010).

<sup>28</sup> Mike Bird, China Just Overtook the U.S. as the World's Largest Economy, *BUS. INSIDER* (Oct. 8, 2014).

how Beijing engages with the rest of the world in the energy field are extensive.<sup>29</sup> That's why China's engagement in the global energy governance matters.

In 2014 president Xi-Jinping declared a massive energy revolution in the country, focused on four main areas of interests: Demand, production, technology and institutional governance, and incorporating international energy co-operation—the “Four Revolutions and One Co-operation” vision. As he declared, “strengthening international co-operation comprehensively and realising energy security under open conditions”.<sup>30</sup> Despite international cooperation had long being perceived as a fundamental part of China's energy policy, this was the first time a president of the PRC had recognised officially, giving the start for China's broader engagement in the global energy government.

Chinese involvement in the global energy governance did not happen immediately. Is the result of a precise strategy, from the time when China was an energy independent country with no or little engagement with the international energy community, to its current status of major energy player. Beijing's involvement changed from an indifferent acceptance to an active engagement. China's historical development in the global energy governance can be summarised as follow. China remained outside all the main international energy organization until the 1970s, when it started growing economically and opening up. The country received the membership of the World Energy Council (WEC) in 1983, it started taking careful steps within the international energy community, with the intention of acquiring more experience and learning how to complain with the international rules.<sup>31</sup> From 1990s, China has started implemented a more dynamic strategy in global energy governance. The turning point was in 1991 when the country joined the Asia-Pacific Economic Cooperation (APEC) Energy Working Group, increasing its exposure in the global affairs. With the beginning of the 21<sup>st</sup> century, China started having a more concrete involvement in the global energy system, correspondingly to the shift from a unipolar to a multipolar world. It became a partner country with several international energy organisations such as the International Energy Agency (IEA), the International Energy Forum (IEF), the Organization of the

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<sup>29</sup> International Energy Agency (IEA), *China's Engagement in Global Energy Governance*, 2016, p. 9.

<sup>30</sup> Xi, Jinping (2014a), *Speech at the Sixth Meeting of the Chinese Communist Party Central Committee Finance & Economy*, Beijing, 13 June 2014.

<sup>31</sup> International Energy Agency (IEA), 2016, p. 12.

Oil Exporting Countries (OPEC), the Energy Charter, the International Atomic Energy Agency (IAEA) and the International Renewable Energy Agency (IRENA).<sup>32</sup>

Beijing has developed a specific strategy for international energy co-operation, diversifying its foreign agreements both with bilateral and multilateral arrangements. According to the NEA, Beijing has concluded 42 bilateral energy partnerships mechanism, including the major energy consumers and producers. At the same time, it cooperates with 26 international energy institutions.<sup>33</sup>

### What is Energy Security

“Energy security is defined as the availability of a regular supply of energy at an affordable price”.<sup>34</sup> Additionally, this definition can have “physical, economic, social and environmental dimensions; And both long and short-term dimensions”.<sup>35</sup> A physical interruption can materialize when the supply of energy comes to a halt, and this can happen due to several reasons, such as a disruption in the production, that can be voluntarily or not.<sup>36</sup> Economic disturbances are the consequences of the instability in the price of energy commodities in the markets, as a reaction to a threat or a voluntarily interruption of supplies.<sup>37</sup>

Moreover, in recent times markets had to deal with another source of apprehension, derived from the speculation, and therefore, price fluctuation due to a potential interruption of the supplies.<sup>38</sup> The insecurity related to a stable energy sources can also cause severe social instability, today gas and even more oil, are vital to the operating of the economy and more broadly of our society. What is more, nowadays there are many concerns related to environmental issues.

Energy security can also be viewed under a long term and a short-term perspective. The short term takes in consideration an unpredicted cut of the supply and a consequent rise of the prices, in the long term the attention is towards a stable availability of energy

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<sup>32</sup> Ibid.

<sup>33</sup> NEA (National Energy Administration) (2016), (“Opening up and development of international co-operation”), Special Report No. 6 on NEA’s Year 2015, 27 January 2016, PRC.

<sup>34</sup> IEA, 2001.

<sup>35</sup> European Commission, 2000.

<sup>36</sup> Costantini V, Gracceva F, Markandya A, Vicini G, “Security of energy supply: Comparing scenarios from a European perspective”, Energy Policy.

<sup>37</sup> Ibid.

<sup>38</sup> Ibid.

which permits a constant economic development.<sup>39</sup> In the last decades energy security has grown in importance in the international policy agenda, this is mainly due to two reasons; the first one is the dependency of the developed economies over imported energy supplies, and the second is the increased repetition of interruption of the energy sources. In the last decades energy security has grown in importance in the international policy agenda, this is mainly due to two reasons; the first one is the dependency of the developed economies over imported energy supplies, and the second is the increased repetition of interruption of the energy sources.

The type of dependence normally varies based on the energy type and the structure of the international market. For example, oil is very sensitive to the volatility of the market price, and on geopolitical issues, natural gas can be an uncertain source, due to its strict reliance on pipelines.<sup>40</sup> Furthermore, the economic and physical aspects of the dependence are connected to each other, a physical interruption of the supply would represent an increase in price. In this scenario, the ongoing Global energy apparatus is not strong enough to keep up with the fast-economic growth. OECD countries tend to consume always more energy and to import more energy products, the result is that always more sectors of the economy are dependent on energy imports, especially oil and gas.

The future challenge will be to enforce a system that will guarantee an appropriate reaction to threats coming from energy insecurity. Furthermore, a stable access to energy depends on an intricate structure of global markets, cross-border infrastructure, financial and technological dependencies.<sup>41</sup>

Even though the concept of economic and energy security has different meanings, they have many things in common, both of them represent the fundamental premises of the normal activity of the state. After the end of the bipolar world energy security issues have become more complex and volatile, changes produced in one part of the globe can have cause severe effects elsewhere in the world.

Nowadays the “old actors” are slowly backing up from the international scenario, while new actors are emerging stronger and stronger, these new players are represented by

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<sup>39</sup>Costantini V, Gracceva F, Markandya A, Vicini G.

<sup>40</sup> Ibid.

political and military systems, transnational corporations and non-governmental organizations, regional, continental and global organizations.<sup>42</sup>

After the last financial crisis China's power in the international market has grown substantially, especially Chinese energy resources. China has a constantly need of searching for solutions to its growing energy demand. And for this reason, Beijing has given to its enterprises a guideline of investing in foreign companies to accommodate long-term plans and secure energy supply. Energy security is changing, and full of uncertainties, and nowadays is not any-more a single country's problem. Energy security, and more in particular the price of energy, is a global issue that influence world economy. Therefore, it necessitates a mixture of economic policies on one hand, and diplomatic solutions on the other hand. Chinese energy security policy will require the development of fiscal and monetary policies together with foreign policies.<sup>43</sup>

### Energy Security and Securitization

How I already said, in order to fully understand the rise of China as a global energy power is important to clarify the role that securitization of energy had for China.

In this section I will try to discuss how and to what extent can classic securitization theory can be related to the field of energy. I will start with an overview over the discrepancy between the requirements of the energy system and the actual understanding of energy security. I then will try to define energy security by linking it to the classical elements of securitization theory, mostly acquired from the Copenhagen School. Furthermore, I will discuss some of the conducted studies that link classic securitization assumptions to the energy field.

Although the energy field will be always entrenched within the scientific filed, in particular engineering and physics, in the past two decades it became always more and more central to issues related to international relations, global security and economics. Energy has a strong political connotation and trying to categorize it as a sub-category of national security may entail separating it from the field of political and public contest.

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<sup>41</sup> Maria-Floriana Popescu, "The Economics and Finance of Energy Security", 22nd International Economic Conference – IECS 2015 "Economic Prospects in the Context of Growing Global and Regional Interdependencies", IECS 2015.

<sup>42</sup> Ibid.

<sup>43</sup> Zhang Jian, "China's energy security: prospects, challenges, and opportunities", The brookings institution center for northeast asian policy studies, 2011.

The basic ideas of securitization theory, as originally suggested by the Copenhagen School, and in particular by Waever, Buzan, and Balzacq can be used nowadays for answering questions such as, how and why energy should be securitized? The fundamental principle of securitization, as defined by Balzacq and Guzzini lays in the idea that “the existence and management of certain issues as security problems does not necessarily depend upon objective, or purely material conditions”.<sup>44</sup> While, Waever and Buzan describe securitization as, “the discursive process through which an intersubjective understanding is constructed within a political community to treat something as an existential threat [...] and to enable a call for urgent and exceptional measures to deal with the threat”.<sup>45</sup> However, the energy and the security sphere are often considered two individual fields, because energy security does not imply the same impacts as the classic securitization thesis propose. Thus, has been argued that, the energy dimension is often de-securitized, the common perspective energy security can be faced as a political issue, but does not involve “exceptional measure”.

Despite that since the beginning of the 2000s the use of the term energy security has increased significantly, we still don't have a unified definition, and its interpretation has created several issues. However, one of the most relevant definition of energy security is attributed to Daniel Yergin, which in 2006 interpreted it as the “availability of sufficient energy supply at affordable prices”.<sup>46</sup> Another definition of energy security has been referred as the 4As, namely: availability, accessibility, affordability and acceptability. Both these formulations include the fundamentals of energy security policy understood as a trilemma among three basic issues, security, affordability and sustainability.<sup>47</sup>

One of the few attempt that has been carried out in order to unify the fields of security studies and energy security, has been conducted by Aleh Cherp and Jessica Jewell in 2013, they proposed that if energy can be securitized, therefore, we need to ask some questions, such as: security for whom?; for which values?; and from what threats?<sup>48</sup> They defined energy security as “low vulnerability of vital energy systems”, on one

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<sup>44</sup> Balzacq, T. and S. Guzzini. 2015. ‘Introduction: ‘What kind of theory – if any – is securitization?’’, *International Relations*, 29, 1.

<sup>45</sup> Buzan, B. and O. Wæver. 2003. *Regions and powers: A guide to the global security order*. Cambridge: Cambridge University Press.

<sup>46</sup> Cherp and Jewell, 2014, *The concept of energy security: Beyond the four As’*, *Energy Policy*.

<sup>47</sup> *Ibid.*

<sup>48</sup> *Ibid.*

hand this definition emphasizes the aspect of insecurity, on the other hand leave us with further issues, such as identify what kind of infrastructures are vital and why? Furthermore, who is in charge of classify what are the main vulnerabilities, and how to prioritize them? All these arguments are strongly under the influence of both social and political actors. Securitization theory is often focused not on what security is, but rather on what security does, and the shared understanding on this idea is that it transfers a specific issue from the political arena, into the field of “exceptional measures”.

Now it comes the question why energy is most often not securitized? In his energy security review Felix Ciută (2010) writes that “the totality of energy has the potential to normalize security and render it politically unexceptional”.<sup>49</sup> Therefore, energy is, most of the time, not considered a security issue at the same level of other conventional threats, and that is not a securitization act itself. One of the most used argument in favour of the non-securitization process of energy is that, in its logic energy security operates in opposition to traditional military security.<sup>50</sup>

The menace that energy security poses accomplishes itself in the moment when it manifest, on the other hand, military security involves a broader degree of developments between the moment the threat occurs and its end.<sup>51</sup> Furthermore, Cherp and Jewell identify two different types of risks coming from energy system, a shock and a stress, the first one is momentary, while the second is long term and it includes issues that goes beyond the political field.<sup>52</sup> From these definitions it can be deducted that energy security can be an issue of national security but does not always have to be.

Among the energy sector, analyses on energy security focuses mostly on oil, as a global commodity, and gas as a regional resource, while electricity has remained mainly a topic for economists and engineers, oil and gas have seen a growing interest from political scientist and international relations experts. The reality is that energy security has become a crucial topic in the political agendas worldwide, one of the main examples nowadays is the securitization of Chinese climate and energy politics, understood as a security issue by Beijing. As Fischhendler argues, energy security needs to go further the sphere of natural resources and understand the new issues of energy transformation,

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<sup>49</sup> Ciută, F. 2010. ‘Conceptual Notes on Energy Security: Total or Banal Security?’, Security Dialogue, 41, 2.

<sup>50</sup> Kacper S. “when energy become security: Copenhagen School meet energy studies”

<sup>51</sup> Ibid.

<sup>52</sup> Cherp, A. and J. Jewell. 2014.

which are often interconnected with national security matters that goes beyond oil and gas policies.<sup>53</sup>

### Case Studies, China and Uranium

The first Chinese investment in the African uranium market was made in 2007 by a state-owned nuclear company, CNNC, in Niger. A few years later in 2012 another state-owned company the China General Nuclear Power Group (CGNPG), acquired the Husab Mine in Namibia, which became the single largest Chinese investment in Africa. The investment in Niger was broadly recognized as a failed integration of a Chinese company in an African country, while in Namibia Chinese investments have largely improved Namibian authority and economy. However, while Chinese investments in many Africa's resources, from oil to precious metals, has been documented and seems to follow a precise scheme, China's position in the extraction of uranium is not clear yet. That's mainly for two reasons, the first one is that uranium has several impacts on international and economic security due to its role in the development of nuclear weapons and nuclear energy.

Furthermore, most of the investigation that have been carried out tend to highlight how China gains from the relationship with African states while the repercussion on Africa is often negative. However, despite previous Chinese investments in the African Continent where the Chinese encountered some difficulties in managing its strategy in other commodity markets, this time seems more successful in dealing with the uranium market. In order to understand the reason beyond this outcome I will analyse two main variables, the domestic and the international structure that has allowed China to develop more successfully its uranium procurement strategy. On the domestic level a centralized industrial sector, and on the international level an uncoordinated market has allowed Beijing to expand its nuclear power plant and drastically increase uranium imports in the last few years.

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<sup>53</sup>Fischhendler, I., D. Boymel and M.T. Boykoff. 2015. 'How Competing Securitized Discourses over Land Appropriation Are Constructed: The Promotion of Solar Energy in the Israeli Desert'.

### 3) History and Development of China's Energy Policy

The 1973 oil crisis brought the attention on the importance of energy supply shocks, the crisis created enormous economic damages for many oil importing countries. The International Energy Agency (IEA) was established after the first oil crisis, which officially defined the principle of energy security based on the supply of oil and its stability. In the past decades the threats have expanded, and the energy security field had to evolve. The fast growth of emerging economies has increased the dependence on energy resources, with the resulting instability of prices which caused the rethinking about previous strategies.

For several decades China considered energy security an economic issue rather than a national security and international policy concern. Coal has been the predominant energy source in China for a very long time. However, Chinese self-sufficiency ended in 1993 when it started to import oil in order to satisfy domestic demand, Beijing did not realize the seriousness of energy security until the late 90s.<sup>54</sup> In 2008 China became the second largest consumer of oil in the world, and the third largest net importer.<sup>55</sup> China realized the threats it could face from an energy supply shock: with 16 billion barrels of domestic reserves (only 1.2 percent of world total reserves), lack of sufficient Strategic Petroleum Reserves (SPR), pollution issues, fluctuation of energy prices and shortage of electricity and water.<sup>56</sup> The main issues for the Chinese government have thus become to manage its dependence on fossil fuels and to develop a more sustainable energy strategy. The financial crisis has increased Beijing's demand for energy resources and outward foreign direct investment (OFDI) in the energy sector.<sup>57</sup> The increased demand of energy resources from China rise the natural question whether China's expansion is economically, politically, socially sustainable, and whether such demand will dissipate global natural resources.

Beijing's energy security strategy has evolved together with China's expansion as a regional and global power, and in the last decades Chinese energy policy went through several stages, being influenced by China's general strategy in international politics. Self-sufficiency has been the basic principle of China's energy strategy both before and

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<sup>54</sup> Zhang Jian, "China's energy security: prospects, challenges, and opportunities", The Brookings Institution Center for Northeast Asian Policy Studies, 2011.

<sup>55</sup> "China," Country Analysis Briefs, Energy Information Administration, November 2010, <http://www.eia.doe.gov/emeu/cabs/China/Oil.html>.

<sup>56</sup> Ibid.

after the founding of the People's Republic of China in 1949.<sup>57</sup> The concept of self-sufficiency requires that the development of the oil industry has to be independent and relied on Chinese resources rather than foreign assets, which includes human capital, physical capital, and natural resources. The first oil field was developed in the north-east of the country, more precisely in the Liaoning province. At this point Beijing realized the relevance of energy security for the economic development, and therefore, for the national security of the country.<sup>59</sup>

For these reasons the Chinese government decided to establish an ad hoc body in order to manage and develop the national oil fields, the National Resources Commission (NRC). Under the guidance of this new body the Chinese government developed autonomously the first oil project, which made the central government aware of the skills and capacity possessed to expand and manage their own industrial sector. After the first Five Year Plan (1953-1957) the PRC, thank to Soviet aid, drastically improved its oil production. However, the turning point of the Chinese energy strategy and policy is considered to be the mid-60s when the USSR interrupted providing aid to Beijing. China, nevertheless, managed to increase its oil production and maintain self-sufficiency.<sup>60</sup> Ensuring low cost of energy and resources was perceived as the primary goal to Chinese national security. After the cultural revolution (1966-1976), China undertook several economic reforms trying to put the country on a fast growth track, the second formative moment for the country's energy policy. Beijing started moving toward a market economy and private enterprise started to grow during the 1980s replacing most of the state own enterprise (SOE). Furthermore, Chinese GDP started to grow at a fast rate since the beginning of the 1990s. The dissolution of the USSR resulted in China becoming the strongest regional power and the only rising global rival of the U.S. In 2001 the PRC acceded the World Trade Organisation (WTO) which allowed it to strengthen its international trading power.<sup>61</sup> However, such fast expansion of Chinese economy brought to the end the idea of energy self-reliance, Already in 1993 China officially began to import oil to meet its domestic demand.

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<sup>57</sup> Zhang Jian, 2011.

<sup>58</sup> Ibid.

<sup>59</sup> Ibid.

<sup>60</sup> Lim, T.W. "China's Quest for Self-Reliance in Oil: The Story of Fushun, Yumen and Daqing" The Edwin Mellen Press, Ltd. United Kingdom, 2008.

<sup>61</sup> Zhang Jian, 2011.

In the last two decades China was able to increase its energy production, which included the production of renewable and nuclear energy, in 2008 the use of hydro, wind, solar, and nuclear power increased to 9.5% of the total energy use.<sup>62</sup> Hydropower increased from 1% of China's total energy consumption in 1949 to 7.4 percent in 2008; in the same year hydropower capacity reached 170 million kw, making the Asian country the largest hydropower consuming nation in the world.<sup>63</sup> In 2008, solar energy produced 2 million kw, while nuclear energy power installed capacity was 8.85 million kw.<sup>64</sup> However, China remain strongly dependent on fossil combustible to fuel its economy, in 2009 became a net coal importer due to the fact of lower prices in the international market, and despite being the fifth largest crude oil producer China's self-reliance strategy ended in 1993.

From 1965 to 2008 Beijing's oil production increased 17 times while consumption has grown 37 times bigger. China is facing a double problem regarding its energy security strategy, the first one is related to a stable supply while the second one is related to stabilizing energy prices. in 2008 China's oil imports surpassed domestic production, the IEA forecasted that oil imports will reach 75% of the total Chinese consumption by 2030.<sup>65</sup> Furthermore, more than 50% of China's oil imports comes from the middle-east and it is shipped through strategic passages such as the Malacca Strait or the Hormuz one. After the financial crisis of 2008 China started to import more and more resource-related commodities thank to the lower prices of the energy market. According to the BP Statistical Review of World Energy, in 2009 China accounted for almost three-quarter of the global energy consumption.<sup>66</sup>

As I already mentioned, China did not start to take in consideration energy security as part of its international strategy until 1993. In the last two decades Beijing seems to have realized the importance of energy security as part of national security. In 2010 China established a National Energy Commission (NEC) with the task of improving national energy strategy and integrating into international cooperative structures.<sup>67</sup> Furthermore, during the 11<sup>th</sup> Five Year Plan in 2006-2010 the strategy changed respect

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<sup>62</sup> World Development Report 2010, Development and Climate Change, The World Bank, Washington, DC.

<sup>63</sup> Xinhua News Agency, "China's new energy and renewable energy boom in recent years," China Daily, October 3, 2009.

<sup>64</sup> "China's new energy and renewable energy boom in recent years" China Daily, October 3, 2009.

<sup>65</sup> International Energy Agency, 2008.

<sup>66</sup> BP Statistical Review of World Energy, June 2009.

to the previous plans by focusing on expanding the domestic energy supplies and, for the first time, by advancing three new goals: 1) economic efficiency, 2) the reduction of poverty, 3) environmental preservation.<sup>68</sup> Nowadays the Chinese economy has changed toward a more market-oriented economy, the 11th Five-Year Plan has signed a turning point in China's energy policy, bilateral and multilateral agreements have been carried out more and more frequently in order to face the economic security needs of the country.

The main four strategies that China has developed in order to improve its energy policy can be summarized as follows: 1) Diversification of energy resources (natural gas, Clean energy technology, Nuclear energy), 2) Diversifying import routes, try to decrease the import dependence from Middle East, 3) Improving energy exploration and production, 4) Increasing its strategic petroleum reserves (SPR).<sup>69</sup>

Chinese energy security strategy can be divided into four major phases. The first one from 1949 to 1993, can be called the self-sufficiency period. During this very long period China's energy policy was focused on consolidating sovereignty over its natural resources. Foreign policy did have very little role in matters of energy security policy. The second phase 1993-2005 was characterized by the "go abroad" policy, with the end of China's oil self-sufficiency in 1993 it started to import oil from abroad. It was the first time for China's NOC in the global energy market and the central government started encouraging companies to seek oil and other resources, providing more investment and financial support. For the first time energy security strategy and foreign policy became more interconnected in order to improve national security.<sup>70</sup> The third phase, from 2006 to 2010 was characterized by the "outward investment" strategy, in this stage energy security policy has been prioritized with a strong emphasis on environmental protection and green energy. During this period China's political and economic power has increased globally, and Beijing's foreign policy started to play a relevant role in supporting energy security strategy. The fourth and last phase started with the financial crisis in 2008, China took advantage of the lower prices for expanding its investments.

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<sup>67</sup> Zhang Jian, 2011.

<sup>68</sup> Ibid.

<sup>69</sup> Ibid.

<sup>70</sup> For a discussion of energy policy's place within Chinese foreign policy during this period, see James Tang, "With the Grain or Against the Grain: Energy Security and Chinese Foreign Policy in the Hu Jintao Era," CNAPS Visiting Fellows Working Paper Series, Brookings, October 2006.

North Africa together with the Middle East remains the most important suppliers of oil for China. However, the recent political instability of the region has led to China's increased diversification of energy sources. Chinese energy security strategy has learned to change and adapt to the geopolitical and economic adjustments over time. China has conducted several investments in Africa and Central Asia trying to decrease its dependence over the MENA countries. Besides a diversification strategy Beijing started to expand OFDI in the energy sector. When China decided to move from a centralized planned economy to a market driven one in the mid-1990s, this also implied more openness in the domestic energy sector and a change in the decision-making system concerning outward direct investment.

Furthermore, the energy sector has opened significantly in the last two decades allowing foreign companies to invest in China, however, the degree of openness in the Chinese market varies from sector to sector.<sup>71</sup> According to the Statistical Bulletin of China's OFDI, "43 percent of China's top 40 biggest outward foreign direct investment enterprises in 2008 were firms in energy or resource-related sectors".<sup>72</sup>

### Economics of Energy Policy

In this paragraph I will discuss the economics of energy policy, more in particular about the complex relation between global markets, infrastructure networks and financial and technological interdependencies. Furthermore, I will talk about the equilibrium between energy supply and demand and the macroeconomic background that characterized China's rise in the global energy market and its consequences. So far, we have talked about energy policy based on the interconnection of three main issues, economic security, national security and the protection of the environment. The core of economic security is the creation of new jobs or finding commodity markets, national security does not need further explanations, environmental security it focuses on the relation between pollution and health. Furthermore, economic security is both the security that generates resources and the basic premises for the correct operation of the state.

In order to understand energy policy, we need to understand not only the energy sources, but also the functioning of energy markets. Currently energy sources are

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<sup>71</sup> Zhang Jian, 2011.

<sup>72</sup> Morck, Randall, Yeung Bernard and Minyuan Zhao, (2007) "Perspectives on China's Outward Foreign Direct Investment" *Journal of International Business Studies* 39, 337-350 (April/May 2008).

divided into fossil fuels (oil, natural gas, coal), biomass fuels, renewable energy (wind, solar, geothermal and hydropower) and nuclear power. Among which, oil has been and will remain for some time the largest energy source. Furthermore, energy resources rely heavily on the interdependence of many factors, such as: the development of new technologies, human capital, research and development.

This very complex production process together with the difficulties in the distribution of energy resources between regions increases the uncertainty of the energy markets on both supply and demand side.<sup>73</sup> To evaluate the energy market it is sufficient to use an energy supply and demand model, in which energy prices helps to fix both demand and supply. The consequences of price volatility generated by external shocks, could produce economic and social insecurity. Therefore, reducing the risk of price fluctuations and stabilizing the prices can decrease the exposure to energy crisis and social anxiety.

From the supply side energy policy includes four main elements: (1) quantitative volume, (2) proved reserves, (3) fuel variety, and (4) time span.<sup>74</sup> The first three elements can be grouped either under the supply or the demand side, depending whether a country is energy importer or exporter, furthermore, the first three dimensions form the fixed stock at any given time. These four elements alone cannot regulate the energy prices in the global market, however, they create an equilibrium track of energy prices at the intersection of the dimensions with the energy spot price fluctuating along the equilibrium prices in the short run, while in the long run energy prices would reach the optimal point, which is the equilibrium track.<sup>75</sup>

There is no universal formula to deal with energy security due to its complex nature, the only method to face energy security challenges is to approach them according to four dimensions: (1) conserving and increasing energy efficiency; (2) building Strategic Petroleum Reserves (SPRs); (3) diversifying fuel and diversifying imports; (4) managing a hedge trading time frame in which energy commodity are bought and sold, which China is currently improving and developing.<sup>76</sup> These four criteria strongly affect energy security strategy of each country, furthermore, especially for the main exporters and importers, each country's energy security policy guide other countries' decisions in

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<sup>73</sup>Zhang Jian, 2011.

<sup>74</sup> Ibid.

<sup>75</sup> Ibid.

the international energy market. Energy security problems cannot be solved by a single country but can only be changed through international cooperation and multilateral agreements.

As I already said the energy sector is a very dynamic and complex sector, which is constituted by the interconnection of several factors. The final objective of the global energy strategy is to satisfy the current, medium and long-term energy needs, at an affordable price. Therefore, maintaining a balance between the imports of primary resources and a rational and energetic use of the national reserves considering economic and trading factors constitute a priority in the development of a stable energy security strategy. Furthermore, a vital part of energy policy is comprised of energy efficiency, which can be defined as “the ratio of useful outputs to energy inputs for a system”<sup>77</sup>, basically economic output divided by energy input.

Nowadays, an argument to which should be paid particularly attention is the eco-efficiency issue, the World Business Council for Sustainable Development (WBCSD) defines it as “the delivery of competitively priced goods and services that satisfy human needs and bring quality of life, while progressively reducing ecological impacts and resource intensity throughout the life-cycle to a level at least in line with the Earth’s estimated carrying capacity”<sup>78</sup>. However, the concept of eco-efficiency is in strong contrast with an economic principle that states that at any times the cost of consuming a valued resource is decreased, people will start to consume more of it.<sup>79</sup> This principle is also called “rebound effect”, which states that “technological improvements that increase the efficiency of a resource rather tend to increase than to reduce that resource’s consumption rate”.<sup>80</sup>

Energy efficiency can be understood under both a microeconomic and macroeconomic level, at a microeconomic level, at a given portion of the market under the rebound effect, improving energy efficiency normally reduces energy consumption. At a macroeconomic level a more efficient and cheaper energy use may increase the market price due to the restrictions caused by the reduction of fossil fuels deposit and the

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<sup>76</sup> Zhang Jian, 2011.

<sup>77</sup> Helm, D., Hepburn, C., 2009. *The Economics and Politics of Climate Change*. New York: Oxford University Press.

<sup>78</sup> WBCSD, 2015.

<sup>79</sup> Marshall, A., 2010. *Principles of Economics: Abridged Edition*. New York.

<sup>80</sup> Maria-Floriana Popescu, 2015.

inability of developing unconventional energy sources.<sup>81</sup> Or again, a higher energy consumption at macroeconomic level will bring to an increase rate of economic growth, and therefore to an higher volume of energy use throughout the economy. In order to understand energy efficiency, we can measure it through some indicators, such as GDP per unit of energy. Therefore, to calculate the energy productivity of a given economy we will divide the GDP to the energy used measured in kilogram of oil equivalent of the global economy.

### **Energy productivity = GDP/Energy Used**

The peculiar structure and dynamics of the global energy market in the recent years induced some changes in the structure of the economy, in particular among energy intensive industries which uses a great amount of energy in order to fulfil their economic interests, increasing the share in GDP of less energy intensive sectors leads to decreasing the vulnerability of the economy from fuel price shocks. Energy intensity represents the relationship between gross domestic energy consumption and the national economy. In this matter China has a high level of energy intensity, especially if compared to other developing countries, which may be considered quite worrisome if we compare the current and future relevance in the global energy consumption. In the last two decades China has shown a significant increase in energy consumption after a period of decrease in consumption which started in the 1980s.<sup>82</sup>

Another aspect of energy policy is constituted by the financial risks that can arise from an energy shock, oil supply and the costs related to it have affected many of the crisis around the world. The rising global population together with the fast expansion of certain economies such as China increase the demand of energy supply. However, the extraction and transportation process of the classic fossil fuels are getting progressively more and more difficult and costly, increasing the risk of volatility in demand for oil-based products. Volatility, which characterized the financial markets, is generated by unfeasible lending praxis and the increase use of non-conventional trading tools. These issues have an unfavourable effect on the consumer's demand for oil-based products, this negative effect is amplified in oil-importers countries such as China. As global

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<sup>81</sup> Zaman, G., Goschin, Z., 2010. Multi-disciplinarity, Interdisciplinarity and Trans-disciplinarity: Theoretical Approaches and Implications for the Strategy of Post-Crisis Sustainable Development. *Theoretical and Applied Economics*, 12 (553).

<sup>82</sup> Zhang Jian, 2011.

prices rise or fall, international companies try to balance their losses with additional costs to consumers.

Furthermore, the variation in oil prices can cause what is normally called “snowball effect”, the increase in oil price correspond to an increase in the consumer’s goods prices, which are not able to buy other goods or make savings.<sup>83</sup> Of course such effects have serious repercussions on the stability of the economy, in particular in the case of a crisis these issues might have a serious impact on the recovery process. A solid financial system will be fundamental in order to build a future in which there is a broad energy mix able to meet the demand. Due to deregulation and privatization the international energy market is constantly under change. Technological progress is helping achieving energy efficiency, and furthermore emerging economies are becoming less energy consuming.

The slow recover from the last financial crisis together with the urgency of reducing CO2 emissions and the need to fuel growing economies, will change the way the energy market operates. However, investments in the infrastructures and the necessity of developing a new legal framework will be needed in order to make the changes effective.

### China’s expansion after the financial crisis

The financial crisis of 2008-2009 did not have a strong impact on the Chinese economy, on the contrary it helped strengthen China’s energy strategy by further implementing the diversification of its energy supply. China was able to do that thank to the low oil prices and the large use of U.S bills, Beijing started recognizing the importance of monetary and fiscal policies for engaging in the global economy. In 2008 China become the world’s largest creditor to the U.S, detaining more than \$1 trillion in foreign currency reserves in U.S treasury bills and bonds.<sup>84</sup> China has started a policy of diversification by acquiring natural resources and other physical assets around the world with the foreign capitals, with the huge decrease in oil prices between 2008 and 2009 China was able to invest significantly in energy supplies and raw material in the international market, especially in those oil exporting countries who were intensely hit by the crisis. Among the most relevant accords concluded by China after the financial crisis there are,

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<sup>83</sup> Ibid.

<sup>84</sup> Ibid.

the one signed with Saudi companies in 2009 based on a multilateral agreement which secured long-term energy resource supplies, reaching a deal to lend \$25 billion to two Russian companies in exchange of a twenty years supply of Russian oil,<sup>85</sup> the second relevant important was signed with Brazil and included the provision of 100 million barrels of oil per day to China for a loan of up to \$10 Billion.<sup>86</sup>

China's recent strategy is driven not only by the current economic growth but also by the long-term necessity for building up strategic petroleum reserves. Compared to other major oil importers such as U.S, Japan and South Korea, China started building its SPR only in 2004. Most of the OECD/IEA countries conserve stocks of oil equivalent to at least 90 days of net oil imports<sup>87</sup>. After the global financial crisis Beijing decided to reduce part of its financial reserve surplus, taking advantage of the low energy prices and increase its oil reserves, SPR are a long-term strategy that can help reducing the effects of short-term price shocks in the international market.<sup>88</sup>

As I already mentioned, the financial crisis made realize China the importance of connecting monetary policy with foreign policy in an international market where macroeconomic policies are associated with trade and investment issue. Chinese global energy policy has been developed alongside with fiscal and international economic policies, and not limited to investments related exclusively to energy resources. In January 2010, Beijing allow the trade in the U.S in the national Chinese Currency, the Yuan. The Bank of China in the US, precisely in New York, became the "clearing centre" of the Yuan in the country. The new offshore trading policy allowed, for the first time, companies to convert the two currencies (US dollar and Chinese Yuan) with no limit.<sup>89</sup>

With the outbreak of the crisis the Chinese government started encouraging both private and public companies to go abroad, supporting the firms with credit and financial services and promoting investment delegations in other countries. The two main methods by which China conducts investment in the energy sector are: Financial

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<sup>85</sup> Robin Paxton and Vladimir Soldatkin, "China lends Russia \$25 billion to get 20 years of oil," Reuters.com, February 17, 2009.

<sup>86</sup> Associated Press, "Brazil to supply crude to China - in return for \$US10b loan," Sydney Morning Herald, February 20, 2009.

<sup>87</sup> Zhang Jian, 2011.

<sup>88</sup> Noureddine Krichene, "World Crude Oil Markets: Monetary Policy and the Recent Oil Shock," International Monetary Fund Working Paper 2006-62, March 2006.

<sup>89</sup> Lingling Wei, 2011, "New Move to Make Yuan a Global Currency", The Wall Street Journal

outward foreign direct investments (OFDI), which includes banking, insurance and other financial services; and non-financial OFDI, which includes mining, healthcare, education and other sectors.<sup>90</sup> Chinese OFDI increased from \$75 billion in 2007 to \$245 billion in 2009, a growth of more than 300 percent, however China's total OFDI still counts for roughly 6 percent of global OFDI stock<sup>91</sup>. In 2009 the Chinese total stock volume of OFDI amounted for \$245 billion, among which the financial OFDI counted for 18 percent while non-financial OFDI for 82 percent. Non-financial OFDI helped China strengthening its long-term strategy in ensuring energy supplies, acquiring foreign energy and raw material firms increasing competitiveness in the global market.<sup>92</sup> After 2008 Financial OFDI became more and more important. Furthermore, the share of the mining sector in the total 2009 OFDI doubled from the 2008 one, which indicate that China took advantage of the lower prices of energy resources and invested more in the mining sector during 2008 and 2009. If we analyse Chinese OFDI by region, in 2009 Asia remained the major destination with 75 percent of the total share. However, after the crisis, shares in Asia, Europe, North America and Oceania increased, while the shares in Latin America and Africa decreased in 2009 compared to 2008.<sup>93</sup>

Changes in Chinese OFDI in Middle East and Central Asia also occurred, which are one of the key energy supply regions. From 2003 to 2009 Kazakhstan and Mongolia received the largest amount of OFDI stock from China, while Saudi Arabia, Egypt, UAE, and Yemen were allocated with the highest OFDI among the Middle Eastern countries. In 2008 Beijing's OFDI in the Middle East amounted for US \$1,497 trillion and to \$2,292 trillion in 2009.<sup>94</sup>

According to the World Bank forecast, the US dollar may lose its supremacy in the international economy by 2015, and one of the candidate to replace the US dollar is the Chinese yuan.<sup>95</sup> Furthermore, China started signing bilateral agreement related to currency trade also with the Republic of Korea (ROK), Hong Kong, Malaysia, Belarus, Indonesia, Argentina, Japan, the Philippines, Thailand, Saudi Arabia, Russia,

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<sup>90</sup> Zhang Jian, 2011.

<sup>91</sup> Nargiza Salidjanova, "Going Out: An Overview of China's Outward Foreign Direct Investment" U.S.-China Economic & Security Review Commission. March 30, 2011.

<sup>92</sup> Rui Huaichuan and G.S.Yip, (2008) "Foreign acquisitions by Chinese firms: A strategic intent perspective" Journal of World Business, Vol. 43 (2008).

<sup>93</sup> 2009 Statistical Bulletin of China's Outward Foreign Direct Investment Ministry of Finance, PRC.

<sup>94</sup> Ibid.

<sup>95</sup> "Dollar will lose its dominance by 2025, says World Bank's".

Venezuela, Iceland, and many other partners not to use the U.S dollar for trade agreements, which may include oil trade as well.<sup>96</sup>

The further implementation of bilateral currency agreements between China and its trading partners, will result in a large portion of China's energy trade and investments to be paid in currencies other than the U.S dollar. This internationalization process of the yuan will have a strong effect on OFDI, and the energy sector is one of the most important sectors among foreign investments and trade. Furthermore, if we take in consideration the growing share of energy resource trade and OFDI in the total Chinese trade and investments, the monetary policy implemented by Beijing will strengthen the energy security strategy and policy in the global market.

#### 4) Impact and policy implications of China on the International Energy Structure

After having described the structure of the global uranium market and how China has engaged in it, I will now analyse the consequences of the Chinese rise as a global energy power, and what effects does it have on the international energy structure.

I will discuss China's preference for bilateral/regional to multilateral energy organizations, Beijing has demonstrated an inclination to combine state and market when ensuring energy security but at the same has shown a flexible approach to global discussions on climate change. However, energy governance in China still must improve under several different fields especially regarding reforms and globalization strategy.

The size of China's energy economy and the rise in the international system addresses its importance for global energy governance. The country's transformation into the largest energy consumer and producer of greenhouse gases has put China at the centre of every international energy guideline, such as: meeting the surging global energy demand, reducing greenhouse gas (GHG) emissions, eliminating energy poverty and mobilizing capital for transition toward a low-carbon economy. Due to the proportion of Beijing's energy security strategy worldwide we must take in consideration the profound implications for the stability of the global energy system and world peace that

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<sup>96</sup> Ibid.

this process carries. Furthermore, the quest for energy supplies also affects the international effort to develop an international standard for revenue transparency.<sup>97</sup>

Thus, the ascent of China will frame the international energy market and its correlated diplomatic and geopolitical relationship, yet it is not clear yet what role will China play in the international scenario. In order to answer to this question, I will now try to analyse Beijing's approach toward multilateral agreements related to market and climate policies, the country's ability to cooperate with global energy organisations.

I will first start with a brief introduction of China's energy context both internationally and domestically, I already talked about it so I will not spend too much time on this topic. There are three main reasons why the country's energy situation is relevant for understanding China's attitude toward global energy governance. The first one is that the international energy strategy is an extension of its domestic one. Second, internal energy governance is indivisible from global energy governance. Third, domestic structures influence China's reaction, especially regarding its incentives to engage in the global energy market. I will conclude by trying to explain the interdependencies of China's domestic energy governance and global energy governance.

Beijing's domestic energy policy is guided by three main drivers, which have emerged from its fast-economic expansion. First, expansion of its heavy industrial sector, which consumes more than 70% of China's energy use. Second, its growing exports (especially after China has joined the World Trade Organization (WTO)) which counts for almost one-third of both the country's gross domestic product (GDP) and its total energy consumption. Third, its expanding consumption of energy intensive goods. These supply drivers have accelerated China's total energy consumption, which doubled between 1984 and 2000, and it then doubled again between 2000 and 2008, with subsequent increase over fossil fuel dependency<sup>98</sup>. This growing dependence poses at least three big issues to China's energy security: First, interruption of the energy supply at the source or during transportation. Second, price volatility which can damaging the Chinese economy. Third, the contrast between Beijing's foreign policy strategy and its energy interests abroad.

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<sup>97</sup> B. Kong, "Governing China's Energy in the Context of Global Governance", Johns Hopkins University SAIS, Global Policy Volume 2, Special Issue, September 2011.

<sup>98</sup> IEA (2010b) World Energy Outlook 2010. Paris: OECD/IEA.

Meantime climate change consequences also guide China's combination between energy security and climate policies, the fast rise of China over the last three decades has highlighted the impact of climate change on China's food security, water security, ecosystem and socioeconomic wellbeing.<sup>99</sup> Facing the double challenge of ensuring security of supply while meeting the requirements to tackle climate change will require a strong governance. Governance which is understood as the interaction of structures and processes, in order to enforce and coordinate authority, structures are the procedures under which actors operate, while processes are the cooperation between the actors.<sup>100</sup>

However, the central state fragmentation, the increased independence of non-state actors and the multiplying of state-owned flagship energy firms, poses serious threats to China's governance capability. This fragmentation is visible in both energy and climate governance system. Several attempts have been made by the Chinese government in trying to re-organize its energy governance structures, but as of now further steps need to be taken.

As I said engaging in the international energy system is fundamental for China's energy security strategy, for different reasons. The first one is related to the fact that China is a net importer of fossil fuel and therefore foreign supply is vital to its economy. The second reason is that acquiring new energy technologies could eventually help Beijing solving the issues of climate change. Third one, foreign investments are central to its international expansion strategy. Finally, conducting international diplomatic missions reduces the risks for China's procurement strategy. However, Beijing remains excluded from all the major multilateral energy institutions, which are western dominated. The fact that China continues to stay outside of multilateral agreements it's reflective of its ability to engage in the international system s has been more involved and capable of engaging in bilateral and regional agreements.

On the one hand we have China outside the most relevant energy organizations at the global level such as, the Organization of Petroleum Exporting Countries (OPEC) and the IEA. On the other hand, it has been involved in a multitude of global institutions such as, the World Bank and several United Nations agencies including the International Atomic Energy Agency. As a net oil importer, it is logical to understand

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<sup>99</sup> State Council of People's Republic of China (2008) White Paper: China's Policies and Actions for Climate Change. Beijing: Information Office of the State Council of the People's Republic of China.

why China is not part of the OPEC organization, but it is not so easy to understand the absence of Beijing from the IEA. As the world's largest energy consumer and GHG emitter, China seems to be a natural partner for the IEA.

However, two factors are prerequisites to the membership of the IEA. The first one is the participation in the Organisation for Economic Cooperation and Development (OECD), the second is possession of oil emergency reserves at the equivalent of 90 days of net oil imports.<sup>101</sup> Although, Beijing recognize the importance of the IEA, in fact China started collaborating with the Energy Agency in 1997 receiving considerable support in enforcing its energy data collection. The membership in the IEA would imply certain duties and burdens that could constrain China and decrease its resilience.

Being left outside from the big international energy organizations, China has been focused on developing regional and bilateral energy agreements. Many of these energy/economic agreements have been initiated by Beijing, such as the Shanghai Cooperation Organization (SCO). Yet, these regional initiatives have not brought to China the expected energy security results.

Further to engaging with the international energy establishment, Beijing needs to interconnect with the global energy market. So far three main pillars have shaped China's interaction in the international energy system, how China balances market versus internal policy, how China perceives the international energy market and how the international energy market has reacted to China.<sup>102</sup> These factors have created the conditions for the need to rely on the state to govern its energy economy and its need for energy security.

Beijing's approach to the international market has always been influenced by its historical background, especially related to the CCP's adoption in 1949 of the former Soviet Union's economic model. However, after the rupture of the Sino-Soviet relationship, the USSR interrupted the flow of all economic aid toward China, including the equipment necessary to produce wealth inside Chinese borders. In consideration of this historical experience, Beijing's growing dependency on foreign energy source increases the perception of insecurity in the country.

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<sup>100</sup> Kong, B. (2010) *China's International Petroleum Policy*. Santa Barbara, CA: Praeger Security International.

<sup>101</sup> Ibid.

<sup>102</sup> Ibid.

A second important factor that has shaped and continue to influence Chinese engagement in the international energy market, is the perception of an international system strongly influenced by the west. This inequality, according to China's official statements, it expresses in two different ways. First, due to their military, economic and political power as well as their experience in the global market, more developed western countries have a more dominant position and therefore, a major say over final decision. Second, which is strictly connected to the previous point, China as an outsider has been kept far from the decisional centres.

In the last three decades China has been trying to shift from a centrally planned economy to a market oriented one, despite several relevant improvements the transition is far from over. In order to accelerate the process Beijing has adopted many market tools, for what concern energy economy. Therefore, China's approach to energy policy can be described as a combination of market instruments with a state dominated economy. In engaging in the international system China has largely used this approach, the best example of Chinese state capitalism is the country's quest for oil security since the 1990s, which translates in the two major models China has adopted; the *Projects for oil* and the *Loans for oil*.

The first time Beijing adopted this model was in Angola. Under this strategy Chinese financial institutions and investments banks started providing loans linked to the procurement of goods and the participation of Chinese firms in the construction of infrastructures, in oil-abundant countries. In return NOC's pays back the loans with the oil produced in foreign countries.<sup>103</sup> The second strategy developed by Beijing after the financial crisis in 2008, consisted of securing long-term oil supplies by granting loans to capital-constrained oil economies. The fast rise of china and the way it operates on the international markets rises concerns regarding the mercantilism approach developed in the last three decades.

The last point I will discuss in this paragraph regards the involvement of China in the international community on climate change. This topic is viewed by Beijing as a development issue and this mentality guide its engagement with the international community. Two main positions characterized China's view on climate changes. First, it prioritized technological development demanding climate changes to be addressed

under the point of view of sustainable development. The second point regards the belief that developed countries are the main perpetrators of the increase in GHG emissions and therefore, they should be taking the lead in reducing emissions, providing both technological and financial support to developing countries, which China views as the victims of climate changes. These two fundamental points guide Beijing's climate changes strategy with the international community.

China has declared that it will not undertake binding international agreement to reduce GHG emissions. However, China's fast development especially if compared to other developing countries of the G77 group, together with an increased responsibility toward climate changes, has brought Beijing to show more flexibility in global negotiations. Since the very first time when China has participated in the climate negotiations in 1990, this new flexible approach has emerged under four different key issues<sup>104</sup>. The first one, and probably most relevant, China has changed from being sceptical to supportive of clean energy. Second, due to its growing financial and technological capabilities, Beijing has increasingly promoted joint strategies between developing and developed countries. Third, China became increasingly more dynamic in climate cooperation both regionally and bilaterally. Last, it has exhibited more and more transparency regarding the share of its statistics on emissions reduction.

This change of attitude in China's approach to climate changes is good news for the international community. In the last decades Beijing has responded to the international pressure, but more importantly it indicates a strongest willingness to be part of the solution. Therefore, it is not impossible to expect an increasingly growing effort from China toward the climate change issue. The country has undertaken a massive transformation of its economic and industrial sector with a precise focus on seven emerging sectors; biotechnology, clean energy, high-end equipment manufacturing, energy conservation and environmental protection, clean energy vehicles, new materials and next-generation IT. In the meantime, China has become a world leader in clean energy production accounting for 22% of global investment. Therefore, the country will be increasingly able to reduce GHG emissions at home while providing assistance to developing countries both in terms of technological and financial aid.

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<sup>103</sup> Alves, A. C. (2010) 'The Oil Factor in Sino-Angolan Relations at the Start of the 21st Century', Occasional Paper. Johannesburg: South African Institute of International Affairs.

<sup>104</sup> Zhang Haibin (2007) 'Zhongguo yu Guoji Qihou Bianhua Tanpan' ['China and International Climate Negotiations'], Guoji Zhengzhi Yanjiu [International Politics Studies], 1, p. 16.

China's transformation into the largest energy economy has constituted one of the most relevant changes in the international energy structure, not without concerns. Under the multilateral approach, there are worries that the growth of China in the international energy system will undermine the existing relationship. Regarding the engagement of Beijing in the international energy market the worries are mostly related to China's energy security approach, that may challenge the investment and the global energy trade. Under the aspect of climate changes fighting, the concerns are that Beijing will be too busy feeding its growing economy rather than cooperate.

## 5) China's Engagement in the Global Uranium Market

In this chapter I will analyse Beijing's engagement in the global uranium market, and the impact on the commodity markets together with the effects that this relatively new trend has on Chinese energy security strategy. In doing so I will consider two case studies of China's commitment in the African uranium market, more in particular the Chinese investments in Niger and Namibia.

China's quest for uranium has started to grow considerably in the past 15 years, has been argued that Chinese demand for specific commodities may start falling soon, however this is not the situation for the uranium market. In 2012 China had 16 operating nuclear reactors, as of now the country can count on 46 reactors in operation with a capacity of 42.8 GW and 11 under construction.<sup>105</sup> According to the IEA since 2012, China has been the country with the largest installed power capacity reaching 21% of global capacity, ahead of the U.S. Furthermore, the age difference of the structures in the two country is the real strength of China, 70% of Chinese plants were built in the last decade, while in the U.S half of the installed capacity is produced by structures that are more than 30 years old.<sup>106</sup>

With the 13<sup>th</sup> five-year plan for power production announced by Beijing in November 2016, the government intended to about 20% of its energy consumption to be from non-fossil fuels by 2030.<sup>107</sup> The goal is to reach 120-150 GWe of nuclear capacity, equivalent of 8%-10% of electricity, by 2030. Furthermore, by 2020 coal production will be limited to 1100 GWe, natural gas will be producing 110 GWe, hydro 340 GWe,

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<sup>105</sup> Q. Ding and L. Yiyu, Nation Plans to Import More Uranium, ChinaDaily,2012.

<sup>106</sup> World Nuclear Association, "Nuclear Power in China", <http://www.world-nuclear.org/information-library/country-profiles/countries-a-f/china-nuclear-power.aspx>", March 2019.

wind 210 GWe, and solar 110 GWe, and nuclear 58 GWe. <sup>108</sup> Non-fossil will produce 770 GWe, accounting for 15% of the total electricity production.

In 2015 the *BP Energy Outlook 2035* forecasted that by 2035 China will become the largest energy importer in the world, while China's CO<sub>2</sub> emissions keep increasing and by 2035 will count 30% of the world total.

Despite China is a relatively new actor in the international uranium market, Beijing has managed to take up a space for itself. Taking in consideration that uranium demand in the next years is expected to rise considerably, what will be the role of China in the global market? Will this successful trend persist? In order to understand the implications of China's engagement in the global energy market, these are the questions that we will have to answer in the nearest future. The main argumentations are that the international structure of the market has allowed Beijing to engage in a different way compared to other commodity markets. The uranium market is geographically dispersed, furthermore is characterized by a lack of coordination in particularly among the stakeholders, and it has experienced for many decades a lack of interest and underdevelopment.

The concentration of decision-making, the centrality of the government, and the importance given to the development of a civilian nuclear plan have done the rest. Moreover, China has started to conduct more multilateral agreements with international organizations such as the IEA and the International Atomic Energy Agency (IAEA).

### Brief History of the Uranium Market

I will now try to give an overview of the uranium market, both in terms of his history and regulations on the international level. First, the nuclear fuel cycle is divided in four main processes, and therefore four different markets that need to be considered to control security of supply: 1) uranium mining, 2) uranium conversion, 3) uranium enrichment, 4) nuclear fuel fabrication.<sup>109</sup>

Until the late 1940s the uranium industry was linked mainly to military uses but in 1953 the race for the supremacy in civilian nuclear power production was launched by the

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<sup>107</sup> Ibid.

<sup>108</sup> Ibid.

<sup>109</sup> G. Rothwell, "Market power in uranium enrichment," *Science and Global Security*, vol.17, no.2-3, pp.132–154,2009.

*U.S Atoms for Peace Program*.<sup>110</sup> Already in the 1960s the uranium industry faced a period of stagnation, characterized by oversupply in the global market. The US interrupted the import of uranium for its national nuclear program and cut prices of its uranium export. As a reaction the main uranium producer of the world (Canada, Australia, South Africa, and France) decided to take an action influencing the global market and trying to reduce the impact of the American policy. In 1972 they established a cartel, which had the tasks of fixing the prices and share the market, however the organization did not last long, and was dismissed in 1976 after an antitrust action was issued against it.<sup>111</sup>

During the 1980s and 1990s, due to several reasons, including the end of the Cold war, a braking in the construction of new nuclear plants around the globe as a consequence of the Chernobyl disaster and a reduction in the electricity demand, culminated in a fall of the uranium price, and therefore in the mining production. From the 1980s until 2001 the uranium prices stayed between \$7 US Dollars and \$10 US Dollars per pound (0,45kg).<sup>112</sup> However, at the beginning of the 2000s the uranium prices started to grow substantially until 2007 when a bubble occurred, generated by different factors such as: a flood in one of the largest Canadian mines and an expected undersupply, together with the recent expansion of Chinese nuclear program, and speculative manoeuvres. The uranium price reached \$136 US Dollars in 2007.

In 2011 the Fukushima crisis had severe repercussions not only on the Japanese nuclear sector but also on the global industry. In Japan, in August 2012 almost a year after the accident, only 2 out of 54 Japanese reactors were operating again.<sup>113</sup> Furthermore, the Fukushima event has increased the level of attention on the safety measures and the implementation of emergency procedures of the civilian nuclear plants with an overall inflationary impact on the costs. This forecast together with the negative public opinion linked to the Nuclear power industry culminated in a drop of the prices of uranium, in a few months distances from February to August 2011 prices fell by 30%. A few days after the accident the Chinese State Council suspended the approval of new nuclear program and conducted mass inspections of all the operational plants. Furthermore, in

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<sup>110</sup> Massot P, Chen Z-M, 2013.

<sup>111</sup> L.R. Stewart, "Canada's role in the International Uranium Cartel, International Organization, vol.35, no. 4, pp.657-689,1981.

<sup>112</sup> Massot P, Chen Z-M, 2013.

<sup>113</sup> Edano: Not Up to Government to Decide reactor Restarts, The AsahiShimbun,2012.

May 2011 CGNPC stopped its negotiation for the acquisition of a uranium mine in Namibia, for reopening the consultations only by the end of the same year.<sup>114</sup>

Despite the Fukushima disaster and the slowdown of the nuclear industry, has been forecasted that Asia will account for most of the growth in the new nuclear reactors, 40% of which will be in China.<sup>115</sup> Moreover, uranium demand will increase by 3% in the next few years. The *Royal Bank of Canada Capital Markets* foresees uranium demand growing by an average of 4% per year during the next 20 years, on top of that the construction of reactors in China is expected to outweigh the decommissioning of plants in Germany, Japan, Belgium, Italy, and Switzerland.<sup>116</sup> Nowadays we are entering the transition period for the uranium market, global production meet 75% of the total demand while the rest is assured by military sources that are rapidly decreasing.<sup>117</sup>

Uranium is not widely traded on the commodity exchange like other metals due to its peculiarity, a key institution in the global trade of uranium is the Spot market. Normally the Spot prices and the long-term uranium market move together because of market related price mechanisms, however spot prices are responsible for no more than 15% of the global trade.<sup>118</sup>

In 2006, 6 mining companies occupied 77% of the global uranium market, Areva-17%, Cameco-16%, Rio-Tinto-16%, Kazatoprom-13%, ARMZ/Rosatom-9%, and BHP Billiton-6%. And 4 countries produced 72% of the world's production.<sup>119</sup> Yet, two main characteristics of the global market need to be taken in consideration. The first one is that the global uranium market has neither a liquid spot market nor a producer's organization, is fragmented geographically and the largest producers only emerged in the last two decades. Second, uranium is a capital-intensive resource, and due to security concerns remains a market where inter-state relations play a fundamental role in ensuring security of supply. In recent time China has signed long-term agreements with its Central Asian neighbours such as Kazakhstan and Uzbekistan.

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<sup>114</sup> Massot P, Chen Z-M, 2013.

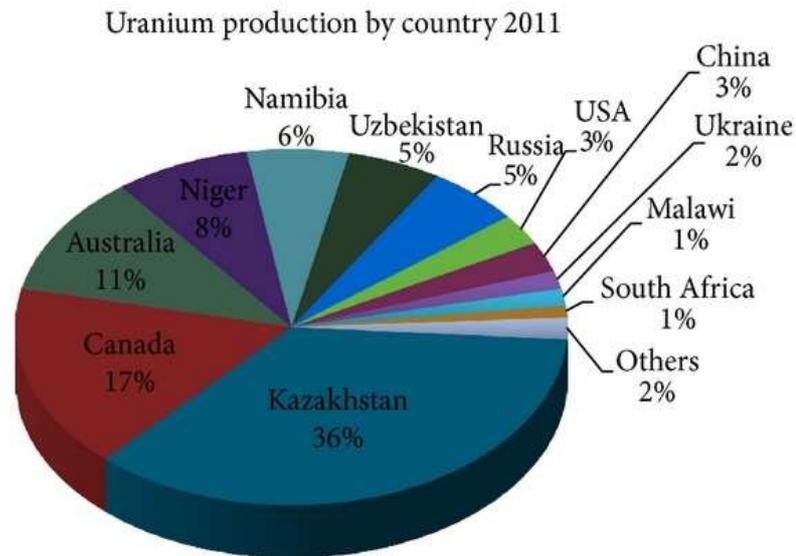
<sup>115</sup> Y.Liu, New Nuclear Projects Ready to Power Ahead, China Daily, 2012.

<sup>116</sup> Metal Prospects: Uranium Market Outlook—Second Quarter 2011, RBC Capital Markets,2011.

<sup>117</sup> Ibid.

<sup>118</sup> "Uranium 101," 2012, <http://www.cameco.com/uranium>.

<sup>119</sup> J.J. Licata, "Going nuclear with uranium stocks. Futures: News, Analysis and Strategies for Futures," Options and Derivatives Traders, vol.40, no.2, pp.30–32,2011.



*Uranium production by country in 2011. Source: Euratom Supply Agency, World Nuclear Association*

### Case Studies, China in Niger and Namibia

Although China has been conducting several bi-lateral and multi-later agreements with different partners among the uranium market, I have decided to focus my attention on two cases. The first one is the 2007 investment in Niger, the first Chinese investment in the uranium sector in Africa, the second one is the 2012 investment made in Namibia, which became China's single largest investment plan in the continent.

China has a long tradition of operating businesses in the African continent, Chinese SOCs have been actively involved in many commodities markets and not only in the energy sector. The two cases on which I have decided to focus are representative of the way of conducting foreign energy policy of China. Moreover, they are interesting cases to observe how Beijing evolved and developed different ways of engagement in the energy sector and more in particular in the uranium market. The first Chinese investment in 2007 was described as a total failure, while Chinese engagement in Namibia in 2012 can be the perfect example of commitment between Central government, state owned company, and foreign government. These case studies will help me trying to answer the questions of what impacts does China have on the global

uranium market? What is Chinese energy strategy for the future, in matter of nuclear energy? And therefore, what will be the implications on the global policy?

In 2007 a Chinese State-Owned nuclear company, the China National Nuclear Company (CNNC), concluded China's first investment in the uranium market in Africa, in Niger. A few years later in 2012 the China General Nuclear Power Group (CGNPG), another State-Owned nuclear company, finalised the acquisition of the Husab Mine in Namibia, which became China's largest single investment on the African continent.<sup>120</sup> Chinese companies in the African uranium market has impacted heavily both the African economies and Beijing's commitment in ensuring the security of supplies. As I already said the investment in Niger was recognized as a failure, while in Namibia Chinese companies were able to engage perfectly in the uranium sector.

China's engagement in the uranium market is a phenomenon that has only recently been analysed, as opposed to its involvement in other sectors of the African continent; such as petroleum or precious metals. This situation is particularly difficult to understand given that, uranium has a wide impact both on global and economic security due to its relevance in the nuclear energy and nuclear weapons. Furthermore, uranium has become China's top mining activity in Africa. The existing literature offers an analysis in which on one hand, African states are undermined by the presence of Chinese enterprises and on the other hand, African states are often attributed with poor negotiations capacity and little ability to manage and regulate the investments.<sup>121</sup>

I will now briefly introduce the history of the uranium industry in the two African countries and the entrance of the Chinese companies in the uranium market. Niger is the largest uranium producer in the African continent and the fourth largest in the world, with 409,000 TU (tons of uranium) posses 7% of the global reserves of uranium.<sup>122</sup> However, Niger ranked among the lowest positions in the UN development index, with an economy that is highly dependent on uranium. Currently there are 4 mines in Niger,

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<sup>120</sup> Peter Volberding and Jason Warner: "China and uranium: Comparative possibilities for agency in statecraft in Niger and Namibia", Working Paper No. 2017/11. China Africa Research Initiative, School of Advanced International Studies, Johns Hopkins University, Washington, DC. Retrieved from <http://www.sais-cari.org/publications>.

<sup>121</sup> Giles Mohan and Ben Lampert, "Negotiating China: Reinserting African Agency into China-Africa Relations," *African Affairs* 112, no. 446 (2013): 92-110; David Fig, "Undermining AFRICA: Africa's Role in the Global Uranium Economy," *Canadian Dimension* 45, no. 6 (2011): 37-38, 4.

<sup>122</sup> World Nuclear Association, "World Uranium Mining Production," 2016, <http://www.world-nuclear.org/information-library/nuclear-fuelcycle/mining-of-uranium/world-uranium-mining-production.aspx>.

but only two in operation (managed by the French state-owned nuclear company AREVA).<sup>123</sup> Although, uranium accounts for 70.8% of all Nigerien exports it contributes only 5.8% of the GDP.<sup>24</sup> In the last two decades Niger has been able to renegotiate partially its contract with the French giant, however the Nigerien government continued to grant particular financial privileges to AREVA.

There are many identifiable problems at the base of the Nigerien inability to manage its uranium sector at best. The first one is the inefficiency of the central government in conducting deals with foreign company, such as the lack of transparency in the contract with AREVA, which has allowed the French company to benefit from the investments in the uranium sector. Although, small improvements in the ability of the Nigerien central government to manage its uranium resources, there have also been some relevant changes. In the last two decades there has been a considerable increase in attention from the Nigerien civil society regarding the uranium sector, more in particular for what concern workers' rights.<sup>125</sup> Furthermore, Niger has experienced difficulties in keeping the regions around the mines safe and under governmental control, with Tuareg populations and members of al-Qaeda in the Islamic Maghreb invoking their lack of benefit from the Uranium production as a justification of violence conducted under the form of insurgencies.<sup>126</sup>

The Chinese engagement in Niger, compared to the long-standing relationship with Namibia, has been a much more recent event. Beijing have been conducting some relevant investments in the country, such as a petroleum refinery, but in comparison to other African countries, Chinese investments have been limited. In 2007 the CNNC acquired the Azelik mine, and by 2009 the Chinese company had committed to invest US \$300 million in the new project, moreover this investment in 2007 interrupted the 40-year monopoly that Areva had held over the uranium sector in Niger. This investment represented a turning point both for China and the African state, was the first one after the 2006 mining law approved by the Nigerien government aimed at reducing tax breaks for foreign mining corporation.

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<sup>123</sup> Peter Volberding and Jason Warner, 2017.

<sup>124</sup> Anne-Sophie Simpère, *Areva in Niger: Who Benefits from the Uranium?* (London, UK: Oxfam, 2013), <https://www.oxfam.org/en/pressroom/pressreleases/2013-12-19/areva-niger-who-benefiting-uranium>.

<sup>125</sup> Marta Conde and Giorgos Kallis, "The Global Uranium Rush and Its Africa Frontier. Effects, Reactions and Social Movements in Namibia," *Global Environmental Change* 22, no. 3 (2012).

The new Chinese investment was initially welcomed with enthusiasm by the Nigerien government; however, the project is widely recognized as a failure. The mine officially started uranium production in 2012, but it was interrupted indefinitely in 2015. The first problem that the development of the new project had to face was the delay of the \$300 million investment promised by Beijing never fully realised, mainly for two reasons: a declining domestic Chinese economy and the fall in global uranium prices. CNNC investment in the Azelik mine also received several accusations related to environmental protection violation and labour infractions, there have been reports of radiation contamination of groundwater, has been also noticed that Nigerien low-skills employees were prevented from learning more specialized skills.<sup>127</sup> Yet has been argued that the Chinese presence in Niger did have an impact in improving Niger bargaining power.

Namibia is the sixth largest uranium producer in the world, and the second largest producer of the African continent. Like Niger the Namibian uranium market has been operated mostly by foreign companies, it was not until the mid-1960s that Namibia's uranium market started to be explored and exploited by foreign companies. The first one to operate in the country was the Rio Tinto, an Anglo-Australian mining company, which acquired the mineral rights of the country's largest uranium deposit, the Rossing mine, which became operative only in 1976. The uranium industry in Namibia has been suffering from fluctuations since the early 2000s, when the price increased the African country faced an exponential growth both in number of mines and number of explorations permits. However, due to the subsequent drop in the global uranium price the development of the projects in Namibia were interrupted or slowed down.

Like Niger also Namibia faced unequal relations with foreign mining companies, after more than a decade of supremacy by the South African Atomic Agency in the Namibian uranium industry, finally in 1974 the United Nations Council for Namibia (UNCN) issued its first act declaring that “any permission, concession or license previously granted, including any granted on behalf of the Republic of South Africa, is null, void

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<sup>126</sup> Jeremy Keenan, “Uranium Goes Critical in Niger: Tuareg Rebellions Threaten Sahelian Conflagration,” *Review of African Political Economy* 35, no. 117 (2008).

<sup>127</sup> Solli Ramatou, GREN, interview by authors, August 16, 2016, Niamey, Niger; Idrissa, 2016; Publish What You Pay and ROTAB, “Etude référence sur les Entreprises et sur les Droits de l’Homme: le cas des industries extractives au Niger [Study on Business and Human Rights: The Case of Extractive Industries in Niger],” 2014.

and of no effect.”<sup>128</sup> After that Namibia have gained independence in 1990 there was hope for the new government to gain more control over its natural resources.

Yet, the results after the independence have been mixed, we can clearly identify two different outcomes in the management of the Namibian uranium sector by the central government. On the one hand the government has still not been able to control the trade of uranium, recent developments of mining programs have received critiques regarding labour violations and environmental damages. On the other hand, if we compare the Namibian case with Niger, we can affirm that these violations have not been closely as serious. Furthermore, the Namibian government has been able to implement serious taxation and fiscal policies over its uranium sector.

Unlike the relationship with Niger, Beijing and the Namibian government have a long tradition of collaboration and trade relations. The Chinese Communist Party has provided support for SWAPO's, the Namibian ruling party, fight for independence in 1970s and 1980s, for this reason China has long been viewed in positive terms by the Namibian population, especially among the “old generation”. As I already mentioned Namibia has been the objective of important Chinese investment in the uranium industry, the Husab Mine became the single largest investment in the African continent conducted by a Chinese company. Since 2013 China General Nuclear Power Group (CGN) has invested in the Husab Mine more than US\$2 billion, when fully operative it will be the second largest uranium mine in the world, and Namibia will become the second world's largest uranium producer.

Moreover, two other Chinese companies have expressed their interest in developing two other uranium projects in the African country. However, the continued low uranium prices have created financial problems with subsequent reduction in uranium output.

China needs a long-term plan which is not based on the western economic model that rely strongly on fossil fuel. Beijing's energy security strategy must be constructed and developed around its natural resources, technological capability, and future growth. China has a large potential in the hydropower, nuclear, wind, and natural gas industry. However, in order to avoid or alleviate oil dependence and severe shocks in the short

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<sup>128</sup> Gay J. McDougall, “The Council for Namibia's Decree No. 1: Enforcement Possibilities,” *Africa Today* 30, no. 1 (1983).

run, China could use its large reserves of coal while building a low-carbon strategy. As of now China's main issue is constituted by its supply-demand gap.

As I already said the key dimension of China's energy security strategy has long been to rely on its domestic resources, according to the principle of self-reliance. However, the fast growth of the Chinese energy need has increased the attention on the diversification of the energy mix, as well as environmental issues has contributed to the rise of China as a civilian nuclear power. The nuclear direction undertaken by China was underlined back in 2012 by president Hu Jintao, who during the Nuclear Security Summit in Seoul reaffirmed the "irreplaceable role of nuclear energy in ensuring energy security and climate change".<sup>129</sup>

Since that moment China has been developing its extensive expansion of civilian nuclear power plant strategy, with a slow down after the Fukushima accident, the goal is to reach 60-70 GWe (Giga-Watt electric) by 2020. However, such an enormous nuclear development plan collides with China's limited uranium reserves, which will aggravate Beijing's import dependency.

Chinese known uranium reserves are insufficient, Beijing possess at most 1% of the world's resources which are equivalent to 68,000 tons, in 2012 China uranium production was 1500 tons while its consumption reached 4500 tons.<sup>130</sup> China's imports is predicted to rise to 17% of total uranium consumption by 2020. Moreover, China is already importing more uranium than it needs for its current annual demand, preparing for a rapid increase of its uranium need.

## 6) Conclusion

China's engagement in the global energy governance is continually shaped by internal and external developments. The three key drivers behind its transformation to a hegemon of the international energy system are: 1) growing energy interdependence between China and the rest of the world; 2) China's evolving global governance views and practices; 3) And evolution of the global energy governance environment. China became a net importer of crude oil in 1993, natural gas in 2007 and coal in 2009. The

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<sup>129</sup> J.T.Hu, "President Hu Jintao Delivers a Speech at the Nuclear Security Summit in Seoul (Hu Jintao zai Shouer heanquan fenghui shang de jianghua),"XinhuaNews,2012(Chinese).

<sup>130</sup> R.Weitz, "China's uranium quest part 1:domestic shortages fuel global ambitions, "China Brief,vol.11,no.15,pp.6-10,2011.

rapid rise of energy demand has driven companies to seek energy sources worldwide under the “Go Abroad” strategy, which have motivated China to promote and secure energy investment, trade and transportation routes. China’s economic expansion has contributed greatly to its involvement in global energy governance. It has had an especially stronger presence and greater voice in global governance since the 2008 global financial crisis. Chinese President Xi Jinping, aiming to improve the global governance system in an innovative way, has become outspoken about the need for reform. His vision for the “Belt and Road Initiative”, combining the Silk Road Economic Belt and the 21st-Century Maritime Silk Road, is also inspiring the Chinese government to leverage various regional energy entities to promote energy co-operation in this ambitious programme.

Chinese energy market is going through major changes within and outside China’s borders since it decided to catch up with the West. Fossil fuels are the main contributor to the economic expansion of Beijing, and all are net imported from resource rich countries. Oil is of fundamental importance for at this stage of China’s expansion, especially regarding transportation within China and we are not only talking about private cars but about the entire network of transit lines nationally and internationally. NOC have started going abroad trying to affirm their presence in the energy resources market and at the same time to gain experience and technologies that can help in increasing its own output within China.

The process of nuclear expansion set in action by China is not without issues and challenges, both on a domestic and international level. On the domestic level, there are a multitude of organizations with different responsibilities in charge of guaranteeing nuclear safety, the main issue is that most of these institutions pursue different goals.

In recent years China has been able to manage domestic challenges, especially related to public awareness of the risks involved with nuclear power. Although the rise of internal protests, Beijing was able to further develop its civil nuclear plan, this was mostly related to the fact that the Chinese nuclear industry is strongly centralized. The nuclear sector and the uranium mining industry in China are controlled by two state-owned companies, the China National Nuclear Corporation and the China Guangdong Nuclear Corporation, which are under direct control of the state council. Therefore, we can affirm that the structure of the internal uranium industry has enabled Beijing to fulfil its political and economic goals.

On the international level, China has managed to face several issues. An example of these problems can be summarised as: The inadequacy in the management of the mining companies, the absence of expertise related to the legislation and domestic policies of foreign countries, and the fact that Beijing is the last player in the international arena. On top of that, political risks are also to be taken in consideration, corruption and political instability in foreign countries such as Africa and Central Asia are a tangible issue.

The expansion of a multipolar system, which is illustrate by the rise of new economic powers will benefit China. Therefore, it has every reason to maintain the current status quo and supporting the existing system. China's expansion in the global energy system will require several arrangements from both China and the international energy community, something has started to move, anyway further steps need to be taken.

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