

CHINA'S ENERGY PARTNERSHIPS WITH THE CASPIAN STATES

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## **ABSTRACT**

### **CHINA'S ENERGY PARTNERSHIPS WITH THE CASPIAN STATES**

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This study aims to analyze the reasons behind the Chinese energy partnerships with the Caspian states and also the effects of these partnerships in the energy sectors of them. In line with this, first Chinese national energy strategy priorities have tried to be specified and then energy relations between China and each Caspian state have been analyzed after giving information on the energy sectors of the relevant countries. It is argued that even though it seems like the motivation behind Chinese energy strategy is to secure its energy supplies no matter what, the country avoids to build energy relations with countries where geopolitical rivalry with world's great powers is tense.

Therefore, with the analyze of the Chinese energy partnerships it is observed that China has mostly invested in East Caspian countries rather than Azerbaijan which cooperates with the western companies in its energy sector, Iran and Russia which are exposed to international sanctions targeting their energy sectors.

**Keywords:** Energy politics, energy security, Caspian region, China, energy investments

## ÖZ

### ÇİN'İN HAZAR BÖLGESİ ÜLKELERİ İLE ENERJİ ORTAKLIĞI

ŞENOL, Merve

Yüksek Lisans, Avrasya Çalışmaları

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Bu çalışma ile Çin'in Hazar Bölgesi'ne yönelik enerji ortaklıklarının arkasındaki nedenler belirlenmeye çalışılmış ve bu ortaklıkların bölge üzerindeki etkileri değerlendirilmiştir. Bu amaç doğrultusunda, ilk olarak Çin'in ulusal enerji stratejisinin önceliklerine değinilmiş ve ilgili ülkelerin enerji sektörlerine ilişkin bilgilerin verilmesinden sonra Çin ve her bir Hazar Bölgesi ülkesi arasındaki enerji ilişkileri incelenmiştir. Çin'in enerji stratejisinin motivasyonu her koşulda enerji arz güvenliğini sağlamak olarak görülse de, Çin, dünyanın önde gelen güçleri ile jeopolitik rekabetin yüksek olduğu ülkelerle enerji ilişkilerini geliştirmekten kaçınmıştır.

Dolayısıyla, Çin'in enerji yatırımlarının incelenmesinden, ülkenin enerji yatırımlarının büyük bir kısmını Doğu Hazar ülkelerine yönelttiği, enerji sektöründe batılı şirketlerle işbirliği yapan Azerbaycan ve enerji sektörlerini hedef alan yaptırımlara maruz kalan Rusya ve İran'a yönelik yatırımlarını belli bir düzeyde tuttuğu gözlemlenmiştir.

**Anahtar Kelimeler:** Enerji politiđi, enerji gvenliđi, Hazar Blgesi, in, enerji yatırımları

*To My Family*

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## LIST OF ABBREVIATIONS

IEA	International Energy Agency
OPEC	Organization of the Petroleum Exporting Countries
EPC	Engineering, Procurement and Construction
BRI	Belt and Road Initiative
SCO	Shanghai Cooperation Organization
CIS	Commonwealth of Independent States
LNG	Liquefied Natural Gas
SOC	State Owned Companies
EU	European Union
US	United States
USD	US Dollars
CHEXIM	China Export and Import Bank
CDB	China Development Bank
ADB	Asian Development Bank
NDRC	National Development and Reform Commission
CIDCA	China International Development Cooperation Agency
CNPC	China National Petroleum Company
CNOOC	China National Offshore Oil Corporation
CNODC	China National Oil and Gas Development Corporation
Bcm	Billion cubic meters
Mb/d	Million barrels per day
B/d	Barrels per day
TWh	Terrawatt per hour
KWh	Kilowatt per hour
GW	Gigawatt

MW	Megawatt
Tcf	Trillion Cubic Feet
USSR	Union of Soviet Socialist Republics
PSA	Production Sharing Agreements
CPC	Caspian Pipeline Consortium
EBRD	European Bank for Reconstruction and Development
UNDP	United Nations Development Programme
GEF	Global Environment Facility
MoU	Memorandum of Understanding
NCOC	North Caspian Operating Company
GDP	Gross Domestic Product
CAC	Central Asia Centre
TAPI	Turkmenistan Afghanistan Pakistan India Pipeline
TANAP	Trans Anatolian Pipeline
TAP	Trans Adriatic Pipeline
AIOC	Azerbaijan International Operating Company
BTC	Baku Tbilisi Ceyhan Pipeline
ITGI	Interconnector Turkey Greece Italy
CNEEC	China National Electric Equipment Corporation
JCPOA	Joint Comprehensive Plan of Action
NIOC	National Iranian Oil Company
NIORDC	National Iranian Oil Refining and Distribution Company
NIGC	National Iranian Gas Company
NPC	National Petrochemical Company of Iran
IPC	Iranian Petroleum Contract
SABA	Iran Energy Efficiency Organization
SUNA	Iran Renewable Energy Organization
ESPO	Eastern Siberia and Pacific Ocean Pipeline

IRENA International Renewable Energy Agency

RAO UES Rao Unified Energy Systems

## **CHAPTER 1**

### **INTRODUCTION**

The aim of this study is to analyze the Chinese energy relations with the countries coasting the Caspian Sea within the limits of energy investments. As the Caspian Basin possesses large amounts of energy resources and China's energy demand is rapidly growing, the energy trade between these two sides will become even more crucial than before.

#### **1.1. Scope and Objective**

As a result of being one of the fastest growing economies, the remarkable increase in China's energy demand has started to acquire an important place in world politics. In order to meet its high level of energy demand, China has started to shape its energy policy accordingly by focusing on the securization of its energy supplies. Ensuring the security of energy resources involves both the sustainable access to energy supplies and the establishment of the necessary infrastructure for safe and uninterrupted transportation of these resources. In order to realize these mentioned energy policy priorities, the Caspian Region holds a critical position in Chinese energy policy priorities.

After the dissolution of the Soviet Union, three littoral countries of the Caspian Sea have declared their independence and this has resulted in a political rivalry in the region of the great powers of the world. Although the Caspian Region possesses vast amount of energy resources, the energy fields in the region are mostly underdeveloped due to the long standing disputes on the legal status of the Caspian Sea. With the agreement signed to solve the disputed status of the

Caspian Sea, it is considered that the region will become even more important in China's energy policy.

This study aims to answer the questions of why China is interested in the region in the scope of its energy strategy and what are the implications of China's energy policy in the region. The answers to these questions will be tried to be given by analyzing the energy investments of China in the region.

## 1.2. Literature Review

Although energy holds a significant place in the foreign policies of the countries, the literature on energy politics and energy security is rather insufficient. As energy security was defined as "the continuity of energy supplies relative to demand"<sup>1</sup> by Christian Winzer, however some scholars argue that energy security can not be defined in a common way. According to the report of Energy Charter Secretariat on international energy security, even though energy security is mostly known as security of supplies, the concept has different meanings for each country depending on whether they are producers, consumers or transit countries.<sup>2\*</sup>

The researches regarding energy politics and energy security have been changed according to the political and economic transformation of the international community. The oil crisis in the 1970s, the establishment of the international

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\* If the country is an energy producer, energy security of that country refers to the securization of its energy sales and if the country is an energy consumer, energy security of that country refers to the securization of its energy purchases. Additionally, if the country is a transit country energy security means the securization of the energy infrastructure for the safe and uninterrupted transportation of the energy resources.

<sup>1</sup> Christian Winzer, "Conceptualizing Energy Security", *University of Cambridge Electricity Policy Research Group Working Paper*, July 2011, p.6.

<sup>2</sup> "International Energy Security: Common Concept for Energy Producing, Consuming and Transit Countries", *Energy Charter Secretariat*, March 2015, p.27.

institutions on energy and the recent emergence of countries with high energy demands affected the approaches towards energy politics.

Jianhua Yu and Yichen Dai have evaluated energy politics and security concepts from different perspectives and stated that until 1970s energy security was evaluated from a conflict point of view as the countries have tried to secure their energy supplies through benefiting from their military power. However, with the beginning of the globalization process the nature of international relations changed from conflict and confrontation to dialogue and cooperation and this transformation has also reflected to energy security studies, as these studies have started to state that energy security can be achieved through international cooperation.<sup>3</sup>

Associating energy security with conflict and confrontation before 1970s, led to an increase in the studies focusing on the concept of energy security shaped by a realistic perspective. Giedrius Česnakas argues that energy resources have become an important sign of state power due to the lack of supranational institutions which are supposed to govern energy related issues in foreign policy and the states which are the main actors, use military power to gain control over the energy resources.<sup>4</sup> According to this approach shaped by realist theory assumptions, there is no global market for energy resources and since these resources are distributed unevenly, only states which have stronger military capabilities can maintain their control over these resources.

However, after 1970s, international institutions like International Energy Agency (IEA), the Organization of the Petroleum Exporting Countries (OPEC) and Energy Charter started to emerge which brought the importance of cooperation

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<sup>3</sup> Jianhua YU & Yichen DAI, “Energy Politics and Security Concepts from Multidimensional Perspectives”, *Journal of Middle Eastern and Islamic Studies (in Asia)*, 2012, p.118.

<sup>4</sup> Giedrius Česnakas, “Energy Resources in Foreign Policy: A Theoretical Approach”, *Baltic Journal of Law and Politics*, 2010, p.49.

in energy politics on the table and the studies on energy policy has started to focus on the liberal theory and also the theory of complex interdependence assumptions. According to Kazutomo Irie, energy politics is both shaped by states and non-state actors like international institutions and international companies. Additionally while energy politics was formed around oil which was the most common energy source, today natural gas, renewable energy and energy infrastructures are the additional issues on the agenda of the energy politics.<sup>5</sup> This approach raises the question in which way international organizations can influence the energy policies of the states. At this point, Dag Harald Claes argues that in order to increase competition between states, international institutions can provide information of some actors' preferences to the other actors, institutions can assist to reduce transaction costs by establishing a negotiation framework and finally institutions can become mediators between states on energy related conflicts. Therefore, the author suggests that by using these tools, international institutions can play a crucial role in the enhancement of energy politics and to avoid conflicts and have a more cooperative climate, policy makers should strengthen the structure of international institutions.<sup>6</sup>

Regarding the concept of cooperation in energy politics there are also different views of the scholars in the literature. For instance, Andrea Prontera indicates that while cooperation with the assistance of international institutions seems like a harder option, cooperation can only be achieved through bilateral agreements with the supplier countries and the states can only use this way to secure their energy supplies.<sup>7</sup> The other view on cooperation in energy politics is that, since fossil fuels are unevenly distributed geographically and most of the reserves of

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<sup>5</sup> Kazutomo Irie, "The Evolution of Energy Security Concept and APEX Energy Cooperation", International Association for Energy Economics, 2017, p.39.

<sup>6</sup> Dag Harald Claes, "Cooperation and Conflict in Oil and Gas Markets" in *The Handbook of Global Energy Policy*, first edition, 2013, p.187.

<sup>7</sup> Andrea Prontera, "Energy Policy: Concepts, Actors, Instruments and Recent Developments", *World Political Science Review*, 2009, p.6.

fossil fuels are located in the countries in crisis, after the widespread use of renewable energy sources, conflicts in energy relations will decrease and international cooperation will be important for sustaining global security.<sup>8</sup>

As it was stated above after the oil crisis in 1970s the energy politics were shaped by international institutions, however the rising energy demands of the fast growing economies have recently started to carry energy politics to another dimension. According to Philip Andrews-Speed, Coby van der Linde and Kimon Keramidas the emergence of China as a large energy importer and the growth in international markets have challenged the governance of the international institutions and the emerging economies like China and India will start to determine the energy politics.<sup>9</sup>

Since China is considered as one of the countries to shape the international energy politics, it becomes even more important how China will behave in its international energy strategy. According to Dr. James Tang energy has become the driving force behind China's foreign policy, however, the country always tries to avoid conflict with other major powers and tries to establish good bilateral relations with these countries. Therefore, as good bilateral relations with major western powers is still the most important element of Chinese foreign policy, it can be said that energy influenced the foreign policy of the country but not transformed it.<sup>10</sup> In this context, Tang emphasizes that even though China does not share the same political and economic interests with Western powers

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<sup>8</sup> Jürgen Scheffran & Clifford Singer, "Energy and Security: From Conflict to Cooperation", Energy and Security INESAP Information Bulletin, December 2004, p.69.

<sup>9</sup> Philip Andrews-Speed & Coby van der Linde & Kimon Keramidas, "Conflict and Cooperation Over Access to Energy: Implications for A Low-Carbon Future", *Futures* 58, January 2014, p.106.

<sup>10</sup> James Tang, "With The Grain or Against The Grain? Energy Security and Chinese Foreign Policy in The Hu Jintao Era", *The Brookings Institution Center for Northeast Asian Policy Studies*, October 2006, p.31.

like US and EU, pursuing its efforts to maintain good relations with these powers is still a key foreign policy objective for China.<sup>11</sup>

In order to explain China's strategic goal to maintain its good relations with Western powers and to be perceived in international community as a responsible actor, Zhao Hong indicates that although China could have taken advantage of sanctions imposed on Iranian energy sector, the country attached more importance to have good bilateral relations with US and kept its energy relations with Iran at a certain level.<sup>12</sup> Therefore, it is possible to claim that instead of pursuing an aggressive external energy policy, China implements a more conservative energy policy by avoiding to be involved in political conflicts as foreign policy objectives always prevail its energy policy objectives.

Although according to some studies, meeting the growing energy demand of China is seen as the biggest problem of its energy policy, the most important problem of the country regarding its energy sector is that it may be subjected to the negative reaction of the countries that have adopted the transition process to low carbon economies due to China's high demand.<sup>13</sup> Accordingly Zha Daojiong argues that as the most important threat to China and the world is this significant increase in the country's energy demand, China should urgently built its strategy in compliance with the energy efficiency rules and behave responsible internationally in its energy strategy.<sup>14</sup> As this study aims to evaluate the reasons why China has significant energy investments in the Caspian region and what are

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<sup>11</sup> Ibid.

<sup>12</sup> Zhao Hong, "China' Dilemma on Iran: Between Energy Security and a Responsible Rising Power", *Journal of Contemporary China*, 2014, p.424.

<sup>13</sup> Zha Daojiong, "China's Energy Security and Its International Relations", *Third IISS Global Strategic Review*, September 2005, p.53.

<sup>14</sup> Zha Daojiong, "Oiling the Wheels of Foreign Policy? Energy Security and China's International Relations", *Asia Security Initiative Policy Series Working Paper*, March 2010, p.12.

the effects of these investments in the region, it is important to identify the role of energy politics in the countries' foreign policies and also the motivations behind the energy strategy of China in general. According to the literature energy politics have recently been mostly changed by the actions of the emerging economies and cooperation is the most important element of world energy politics rather than conflict. Accordingly, China has adopted an energy strategy on the basis of mutual cooperation in order to ensure its energy security. As stated above, although energy is the most important element of the Chinese foreign policy, it does not possess the power to transform the main motivation of China's foreign policy.

### **1.3. Argument**

The thesis aims to argue that although it is thought that the basic motivation behind China's energy policy is considered as meeting the growing energy demand by securing energy supplies from other countries, cooperation with countries, which can bring negative reaction of other great powers even though these countries have large amount of energy resources, is kept in the foreground. Although China tries to carry out its policies in the framework of mutual cooperation and does not interfere with the political systems of the countries in its policies towards other countries, the point of view for the countries with strong bilateral relations differs. Accordingly, when analyzed specifically for the Caspian Region, Chinese state companies are acting like investors in the energy sectors of the countries with good bilateral relations such as Kazakhstan and Turkmenistan, while providing only Engineering, Procurement and Construction (EPC)<sup>15\*</sup> services for Azerbaijan, which western companies dominate the energy sector, and Russia and Iran which are exposed to international sanctions targeting especially their energy sectors. Therefore, in order to gain access to rich Caspian energy resources, China has acquired important stakes in the energy

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<sup>15</sup> \* EPC Services is a contracting arrangement which means a contractor is hired to perform the whole work cycle.

sectors of Kazakhstan and Turkmenistan both in upstream and downstream activities.

On the other hand, China is not interested in the Caspian Region for only to gain access to rich energy resources of the region, but also to benefit from the geostrategic location of the region which constitutes an important role in China's famous Belt and Road Initiative (BRI). Caspian Region is at the core of China-Central Asia-West Asia economic corridor which is one of the six economic corridors of the BRI strategy. Therefore, the energy investments and large amount of loans that these countries need for the development of their energy sectors, whose economies are mostly based on the revenues from the export of energy resources, are provided by China. As these countries need China's loans for their energy sectors, China also aims to foster trade and increase interconnectivity between the countries stated in the BRI concept with the launch of infrastructure and transportation projects also regarding the energy trade.

Energy studies generally focus on the concept of energy security and adopt different approaches regarding how countries can secure their energy supplies. In this context, recent studies generally argue that energy policies of the countries are formed around the goal of ensuring their energy supply security and energy security can only be achieved within the framework of mutual cooperation.

Likewise it is argued that Chinese energy policy is based on maximizing control over the energy resources in energy rich countries in a cooperative manner in order to secure its energy supplies due to its growing energy demand. However, it can be observed that China's foreign policy objectives can determine its energy strategy in some cases. As a result of analyzing China's energy policy towards the Caspian Region it can be observed that energy relations with the countries in the region which are rich in energy resources have not been developed at the same level. Therefore, contradict to the general beliefs which claim that China's energy policy is driven by the motivation of ensuring energy

supplies by cooperating with energy rich countries in the Caspian Region, this thesis argues that China is implementing a conservative energy policy towards the region as Chinese energy investments are mostly directed to East Caspian countries rather than other Caspian countries where geopolitical rivalry is tense.

#### **1.4. Theoretical Framework**

The energy relations between China and the Caspian countries can be examined in the framework of the complex interdependence theory which was first introduced by Keohane and Nye as a critique to the realist theory. In world politics reciprocal effects among countries or actors in other states are examined under the complex interdependence theory, while this reciprocity does not have necessarily to be symmetrical.<sup>16</sup> Complex interdependence theory is based on cooperation in world politics as much as conflict and the clashing interests of each country.

Chinese energy policy may be seen as mostly driven by the concern regarding the security of supply, however, China along with securing its energy supplies aims to foster its energy trade with emphasizing the importance of cooperation rather than conflict. China, which attaches importance to the level of its bilateral relations with the country to which it will invest without interfering with the political regime of the country, contributes to the energy sectors of these countries by providing loans and in return, secures its energy supplies and also energy transportation connections extending to its own territory. As the invested countries also need Chinese loans to develop their own energy sectors this bilateral cooperation can be examined in the scope of complex interdependence theory. While analyzing the energy investments of China in the Caspian region, the arguments of this study are shaped under the scope of the complex interdependence theory.

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<sup>16</sup> Robert O. Keohane & Joseph S. Nye, "Power and Interdependence: World Politics in Transition", *TBS The Book Service Ltd.*, 1977, p.8-9.

## **1.5. Research Method**

In order to analyze the Chinese energy investments in the Caspian countries and their effects in the region, the priority areas of Chinese energy policy both historically and today need to be examined along with the historical and current energy profiles of each Caspian country and their energy relations with China.

In this regard, governmental statistics and data, the reports of international institutions, academic studies and newspapers have been used in order to reflect the historical background and the current situation of the energy sectors of the mentioned countries.

## **1.6. Organization of the Thesis**

This study is composed of seven chapters. In the first chapter, the scope and objective of the thesis, literature review and also the arguments, research methods and the organization of the thesis is explained.

In the second chapter China's energy policy priorities in recent years have been tried to be identified by focusing on the policy priorities related to fossil fuels and non-fossil fuels separately. Then, it is focused on the energy policy of the country towards the Caspian Region under the framework of Shanghai Cooperation Organization (SCO) and the steps taken within the scope of China's ambitious Belt and Road Initiative.

The third chapter analyzes the energy relations between China and the East Caspian states which are Kazakhstan and Turkmenistan in the context of large amount of investments realized by Chinese companies. But first, information will be given regarding energy sectors of Kazakhstan and Turkmenistan separately by focusing mostly on oil and gas sectors since these countries have

much more potential of oil and gas resources comparing to renewable energy resources.

In the fourth chapter, information on the energy sector of Azerbaijan will be given, and China's energy investments in Azerbaijan will be evaluated. The fifth chapter will focus on Iran's energy sector and policies and China's energy relations with Iran within the framework of Chinese companies' investments in Iran. Likewise, in the sixth section, information about Russia's energy sector will be given and the competition and relations of China and Russia in the field of energy will be evaluated.

Finally, the seventh chapter will include concluding remarks regarding the reasons and effects of Chinese involvement in the Caspian energy sectors. From the evaluation of China's investments in the countries in the region, it is concluded that China has strengthened its energy relations with the East Caspian countries, which will not attract the negative reaction of the great western powers, and that it has achieved this in the framework of mutual cooperation.

## **CHAPTER 2**

### **CHINA'S ENERGY POLICY TRENDS AND THE POLICY TOWARDS CASPIAN REGION**

China is among the world's fastest growing countries since the government has adopted a market-oriented approach in the economy with comprehensive reforms realized in 1979. These reforms aimed the opening of the economy to foreign trade and investments. The industrialization and liberalization of the economy resulted in high growth rates which also caused a significant rise in the country's energy needs.

Today, China is the world's largest energy consumer country due to high industrialization in many sectors. In order to meet its high energy demand, China has been increasing its domestic energy production while also enhancing its bilateral economic relations with energy producing countries and increasing its investments in those countries to secure its energy supplies. After launching the going-out policy in 1999, the investments in the energy sector have boosted, moreover with the declaration of the Belt and Road Initiative (BRI) the country provided a basis for these investments and also secured finance from state-owned banks to the investors which are mostly composed of state-owned energy companies.

The BRI is an ambitious programme which envisages high loans and investments to the countries along the route. The initiative envisages to build a connection between Asia, Africa and Europe via both land and maritime connections to achieve regional integration and increase the trade levels. Among the targets of the Initiative energy, infrastructure and transportation projects are the main components to increase the trade level and investments and also to connect

China with its neighbor countries. While the maritime route aims to connect Southeast Asia and Africa with China, with the land route it is expected to increase connectivity between Central Asia, Caspian region and Europe. Therefore, as most of the countries along the land network are energy producing countries, China will have a chance to secure the transportation route of its energy supplies provided by these countries.

Currently, China is considered to be world's one of the largest energy importer countries and its oil imports are coming mostly from Middle East and Central Asia and gas imports are coming mostly from Central Asia and Russia. Accordingly, Caspian Region has started to emerge recently as an attractive market for China, which would enable the country to diversify its energy routes and supplier countries to enhance its energy security. As the Middle East has been struggling with instability and the Chinese energy demand continues to rise, Caspian resources have become more attractive to China while it has also become attractive to other great powers. However the different approaches of China towards the region and huge investments and improving bilateral relations have made China the most important player in the region.

In this chapter, China's energy policy trends in recent years will be examined in terms of fossil fuels and non-fossil fuels. Then it will be focused on the energy policy towards the Caspian Region and how this policy aligns with the general trends in the country's energy policy by also focusing on the targets and implications of the Belt and Road Initiative.

### **2.1. China's Energy Policy Trends**

Despite the decline in its economic growth rate in recent years, China has still the fastest growing economy in the world. This increase in the economic growth resulted in a remarkably increase in the country's energy needs. Today, China is the world's largest energy consumer country.

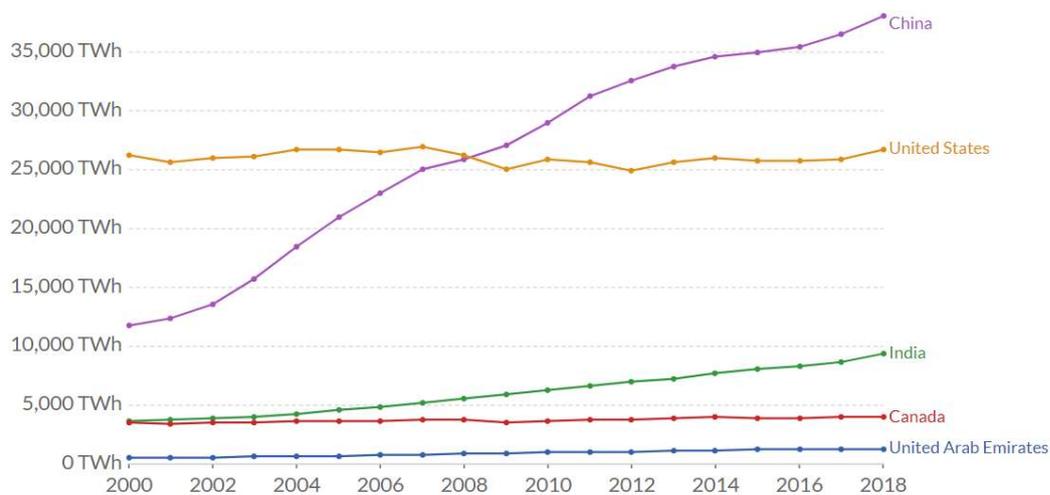


Figure 1 Primary Energy Consumption 2000-2018 (TWh)<sup>17</sup>

China’s primary energy consumption increased 4.3% in 2018, the highest rate since 2012 the country has achieved.<sup>18</sup> As China’s economic growth rate started to slowdown especially after 2018, having a larger economic growth India is expected to surpass China by mid-2020s in terms of the energy demand while China currently remains the largest energy market in the world.<sup>19</sup> The expected slowdown of China’s energy demand not only stems from the decline of the economic growth rate but also the efforts to make the existing energy facilities more energy efficient.

In order to meet the high energy demand, the main goal of China’s energy policy is to secure its energy imports, while diversifying and improving its domestic energy production. The share of fossil fuels in China’s energy consumption is much higher than the share of non-fossil fuels. However, as the oil and gas production in the country is not adequate to meet the substantive energy demand, relying on fossil fuels in its energy policy increases the country’s import

<sup>17</sup> Hannah Ritchie & Max Roser, “Energy”, 2020, Access Date: 05.05.2020, Access URL: <https://ourworldindata.org/energy>.

<sup>18</sup> “BP Statistical Review of World Energy”, 68th Edition, 2019, p.8.

<sup>19</sup> “BP Energy Outlook”, 2019 Edition, p.65.

dependency. According to BP Energy Outlook China's energy import dependency is expected to rise over 40% by 2040.<sup>20</sup> The vast majority of the imports will be met by pipelines from Russia and Commonwealth of Independent States (CIS) and also in the form of Liquefied Natural Gas (LNG). Therefore, in the 13th Five year plan (2016-2020), Chinese authorities have presented the main pillar of the energy policy as the improvement of the energy demand and supply structure which they call "Dual Alternative".<sup>21</sup> Dual Alternative represents switch from fossil fuel energy to non-fossil fuel energy and also switch from coal to gas. Although most of the natural gas consumed is imported, the reason behind the transition from coal to natural gas is the reduction of air pollution in the country which adversely affects the daily lives of the residents.

Beside the dual alternative discourse, the 13th Five Year Plan also focused on market liberalization in the energy sector, as the energy sector of China is mostly driven by large State Owned Companies (SOCs). These SOCs are mostly governing the oil and gas sector and holding their activities both in China and overseas under the state's leadership. The top managers of the major SOCs are appointed by "The Central Committee of the Chinese Communist Party" and the financing comes from state banks, so the government encourages the companies to follow government policies also in abroad.<sup>22</sup> Although there are efforts to increase the activities of the private companies in the energy sector, the state's hand is still visible.

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<sup>20</sup> "BP Energy Outlook, 2019 Edition", p.101.

<sup>21</sup> Takuma Yatsui, "China's Energy Policy and Related Issues Towards 2020", *Mitsui Global Strategic Studies Institute Monthly Report*, April 2017, p.1.

<sup>22</sup> "Chinese Companies Energy Activities in Emerging Asia", *International Energy Agency*, April 2019, p.17.

In order to meet the growing demand, Chinese authorities are trying to increase the domestic energy production by the investments mostly made by the abovementioned SOCs while also investing in other countries' energy sectors. After the declaration of the government's "going-out" strategy in 1999, the Chinese companies have been urged to invest in global markets including in the energy sector in order to more effectively participate to the world energy governance. In the context of the going-out strategy, energy companies have been trying to secure national control of overseas oil and gas resources instead of directly purchasing these resources<sup>23</sup> which will put at risk the energy security of the country due to high import dependency in these resources. Other than energy security concerns, the reason why China wants its own share of the resources in other countries is to protect the domestic Chinese energy market from unpredictable price fluctuations.

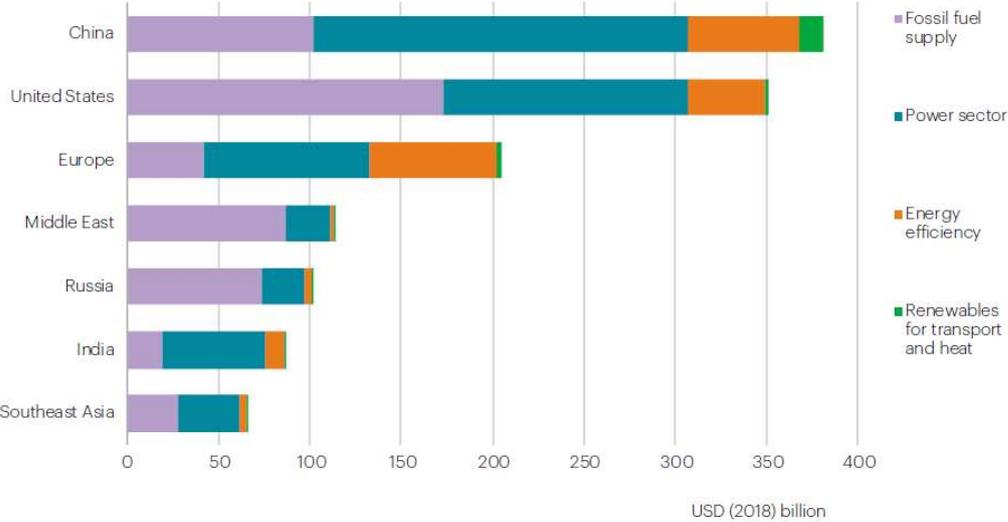


Figure 2 Energy Investment by Sector in Selected Markets in 2018<sup>24</sup>

<sup>23</sup> Gaye Christoffersen, "The Role of China in Global Energy Governance", *China's Perspectives*, June 2016, p.19.

<sup>24</sup> World Energy Investment 2019, *International Energy Agency*, 2019, p.19.

According to Figure 2 China is the largest investor country in the energy sector with over 350 billion United States Dollars (USD) of investment in 2018. The investments are mostly in the fossil fuels and power sector, however investments in renewables are rapidly growing in recent years.

Regarding the overseas investments in oil and gas sectors Chinese companies are either investors or contractors, however in the power sector they held their activities only as contractors by providing construction services and equipment supply. In order to become an investor, the political and economic stability of the country in which they invest is important and they also take into consideration the political ties between the country and Chinese state.

Like companies which carry out the overseas investments, banks that finance these investments are also state owned. China Export and Import Bank (CHEXIM) and China Development Bank (CDB) are the main financiers of the Chinese energy sector investments. Chinese banks provided more than 144 billion USD outward foreign direct investment between 2002 and 2012 to support the going-out policy and 88% out of which came from CHEXIM and CDB, whereas the commercial banks contributed to 12%.<sup>25</sup> These state owned banks carried out their activities in alignment with the government priorities in close coordination with other state institutions. In order to contribute to the country's investments in overseas, CHEXIM and CDB together with the National Development and Reform Commission (NDRC) established "special loans" and "equity loans" to be used specifically for the financing of the overseas investments.<sup>26</sup> In addition to this, another governmental body, China

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<sup>25</sup> Bo Kong & Kevin P. Gallagher, "Globalizing Chinese Energy Finance: The Role of Policy Banks", *Journal of Contemporary China*, 26:108, 2017, p. 839.

<sup>26</sup> Ibid, p.841.

International Development Cooperation Agency (CIDCA), was introduced in 2018, in order to monitor the financing of the overseas investments.<sup>27</sup>

### **2.1.1. China's Energy Policies on Fossil Fuels**

China's oil and gas sectors are governed by 3 major energy companies which are state owned. These companies are Sinopec, China National Petroleum Corporation (CNPC) and China National Offshore Oil Corporation (CNOOC) and they are responsible for the domestic upstream and downstream activities, along with oil and gas investments in world markets.

#### **2.1.1.1. Natural Gas**

China's gas demand has increased 9.6% to 304 billion cubic meters (bcm) in 2019.<sup>28</sup> This increase was respectively low compared to previous years because of the economic slowdown and the trade war with the United States (US). Also the slowing down in the country's coal-to-gas switching programme has curtailed the country's demand growth. However, the share of gas consumption is likely to increase until 2035. The share of natural gas in the country's energy mix was 4% in 2010 and this share is expected to rise to 12% in 2035<sup>29</sup>, due to more use of gas in power plants, heavy industry and heating.

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<sup>27</sup> "Chinese Companies Energy Activities in Emerging Asia", *International Energy Agency*, April 2019, p.21.

<sup>28</sup> "China: Key themes for 2020", *The Oxford Institute for Energy Studies*, January 2020, p.5.

<sup>29</sup> Ole Odgaard & Jørgen Delman, "China's Energy Security and Its Challenges towards 2035", *Energy Policy*, 71: 2014, p.109.

Domestic production of gas in the country is expected to reach 207 bcm in 2020, out of which shale gas production is expected to reach 30 bcm.<sup>30</sup> As gas demand increases, China is trying to develop the sector and increase its domestic production by enhancing the exploration activities, expanding the gas grid, increasing gas storage capacity and speeding up the sector reform.<sup>31</sup>

However as can be seen from the numbers, China’s gas supply is not adequate to meet the high demand which urges the country to import natural gas from other countries. The steady increase in gas demand leads to an increase in import dependency which threatens the country’s energy security.

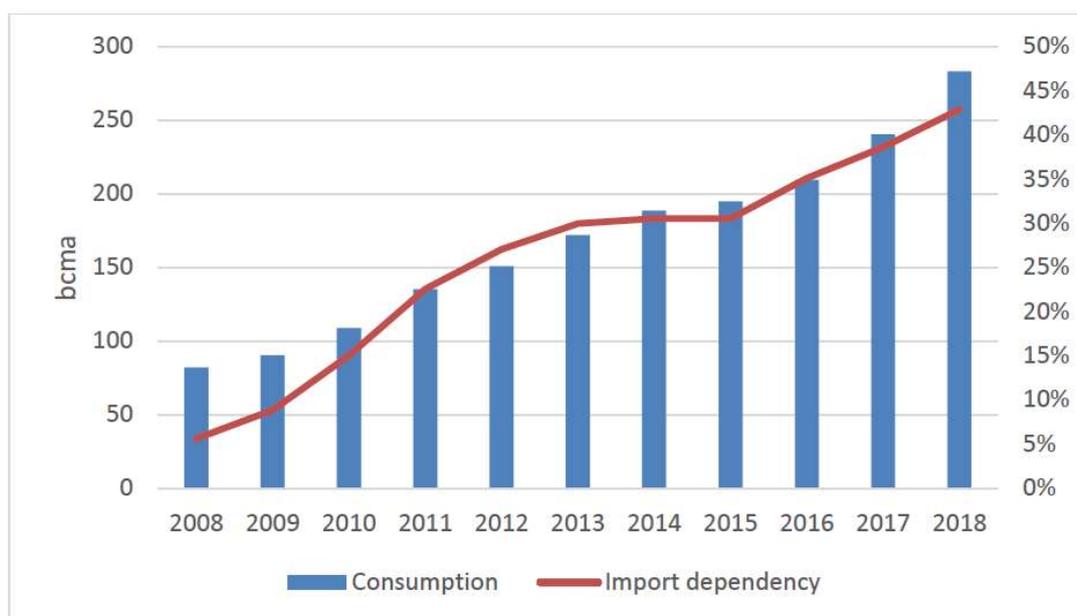


Figure 3 China's Growing Gas Import Dependency<sup>32</sup>

Source: BP Statistical Review of World Energy, 2019.

<sup>30</sup> “China: Key themes for 2020”, *The Oxford Institute for Energy Studies*, January 2020, p.2.

<sup>31</sup> Stephen O’Sullivan, “China’s Natural Gas Development Report Reality Check”, *The Oxford Institute for Energy Studies*, December 2019, p.5.

<sup>32</sup> Stephen O’Sullivan, “China’s Natural Gas Development Report Reality Check”, *The Oxford Institute for Energy Studies*, December 2019, p.12.

In just ten years China is expected to import 40% of the gas it consumes<sup>33</sup>, taking into account the demand growth rates. In order to decrease the risk of energy security because of the increasing import dependency, China is trying to diversify its supplier countries and the routes by expanding its pipeline capacity. By 2020, gas pipelines will be extended to 104 thousand kilometers from 64 thousand kilometers in 2015.<sup>34</sup>

China is carrying out most of the major new international gas pipeline projects that are anticipated to 2040, especially with the Power of Siberia Pipeline originating from Russia and a fourth link from Turkmenistan.<sup>35</sup> China was mostly securing its gas supplies from Russia through pipelines and in the form of LNG from other countries. In recent years, in order to become less dependent on Russian gas, China has started to sign agreements with Central Asian countries to diversify its supplier countries. Currently, Central Asia is the main supplier of China's pipeline gas, by providing 92% of its pipeline imports.<sup>36</sup> The major gas supplier to China in Central Asia is Turkmenistan and the country provided 34 bcm of gas in 2017 to China despite the contracted amounts were not met during winter.<sup>37</sup> The existing gas pipelines A, B and C are already in operation with 55 bcm of transport capacity, while line D is under construction by CNPC which

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<sup>33</sup> Ole Odgaard & Jørgen Delman, "China's Energy Security and Its Challenges towards 2035", *Energy Policy*, 71: 2014, p.109.

<sup>34</sup> Takuma Yatsui, "China's Energy Policy and Related Issues Towards 2020", *Mitsui Global Strategic Studies Institute Monthly Report*, April 2017, p.2.

<sup>35</sup> "World Energy Outlook 2019", *International Energy Agency*, 2019, p.44.

<sup>36</sup> "Chinese Companies Energy Activities in Emerging Asia", *International Energy Agency*, April 2019, p.12.

<sup>37</sup> *Ibid*, p.12.

will add 30 bcm of capacity by 2024 when it is completed.<sup>38</sup> These pipelines all together will extend the China-Central Asia connection to Turkmenistan, Uzbekistan, Tajikistan and Kyrgyzstan.

### 2.1.1.2. Oil

According to World Energy Outlook, China’s oil demand will reach a peak of 15.7 million barrels per day (mb/d) in the early 2030s and the rapid oil demand growth will end, however due to decrease in the oil demand of US, China will become the world’s largest oil consumer before 2040.<sup>39</sup> In order to meet the high demand China either tries to increase its domestic oil production or to increase its overseas investments and imports. Currently, China imports 69% of the oil it consumes and this rate is expected to increase to 82% by 2040.<sup>40</sup>

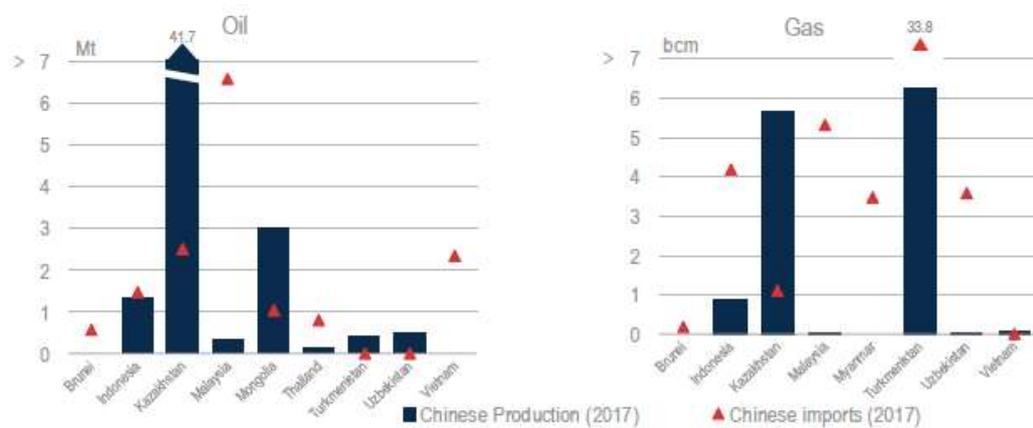


Figure 4 Oil and gas production by Chinese companies in emerging Asia and imports from the region 2013-2017<sup>41</sup>

<sup>38</sup> Ibid, p.13.

<sup>39</sup> “World Energy Outlook 2019”, *International Energy Agency*, p.129.

<sup>40</sup> “Chinese Companies Energy Activities in Emerging Asia”, *International Energy Agency*, April 2019, p.10.

<sup>41</sup> Ibid, p.12.

Source: Rystad Energy (2018), Ucube (database)

As can be seen from Figure 4, Chinese companies are producing large amounts of oil in mostly Central Asian countries, especially in Kazakhstan.

Regarding the refining activities, China has become the world's second largest refiner country, while it encourages the companies to build new refineries both in China and in other countries. However, in the refining sector, Chinese companies mostly provide EPC services rather than being investors. Currently, Chinese companies are involved in refining projects with a total capacity of 1 mb/d.<sup>42</sup>

### **2.1.1.3. Coal**

The global coal market is dominated by China as China is the world largest coal producer and consumer country. Although China will experience a small reduction in coal consumption of 0.4% per year from 2018 to 2040<sup>43</sup> due to cleaner energy goals, the country has still the largest coal market worldwide and is likely to account for almost half of the world coal growth until 2035.<sup>44</sup>

Chinese authorities tend to implement coal-to-gas switching programme both in industry and heating in recent years due to environmental concerns. In order to decrease the air pollution, the final investment decisions for new coal-fired plants fell from 60 GW in 2015 to less than 6 GW in 2018 while more gas-fired power plants were approved.<sup>45</sup> However, coal fired plants already in operation in

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<sup>42</sup> Ibid, p.4.

<sup>43</sup> "World Energy Outlook 2019", *International Energy Agency*, 2019, p.224.

<sup>44</sup> Ole Odgaard & Jørgen Delman, "China's Energy Security and Its Challenges towards 2035", *Energy Policy*, 71: 2014, p.109.

<sup>45</sup> "World Energy Outlook 2019", *International Energy Agency*, 2019, p.224.

the country are much more than gas-fired power plants. In 2015, 49% of the coal consumption was used for power generation and this share is likely to rise to 55% in 2020.<sup>46</sup>

While coal-to-gas switching programme is crucial to reduce the air pollution, at the same time it increases the share of natural gas in the country's energy consumption which will cause an increase in energy imports and puts at risk the energy security of the country. The initial coal to gas policy ended up with gas shortages, during the winter 2017-2018 and with the recent Winter Clean Heating Plan (2017-2021) announced by the government emphasized on clean heating by coal. In October 2019, Premier Li Keqiang, addressing the National Energy Commission, emphasized the need to promote safe and green coal mining as well as clean and efficient development of coal-fired power.<sup>47</sup>

These are the indications that coal will remain a key component in China's energy mix over the medium and long term<sup>48</sup> since it is considered as the most reliable natural source by the country due to high domestic production.

### **2.2.2. China's Energy Policies on Non- Fossil Fuels**

According to the 13th Five Year Plan for Electricity (2016-2020) the government aims to increase the share of non-fossil fuels in the electricity production from 35% to 39% by 2020.<sup>49</sup> By 2030, one fifth of electricity will be generated from

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<sup>46</sup> Takuma Yatsui, "China's Energy Policy and Related Issues Towards 2020", *Mitsui Global Strategic Studies Institute Monthly Report*, April 2017, p.2.

<sup>47</sup> "China: Key themes for 2020", *The Oxford Institute for Energy Studies*, January 2020, p.5.

<sup>48</sup> Michal Meidan, "Glimpses of China's Energy Future", *The Oxford Institute for Energy Studies*, September 2019, p.3.

<sup>49</sup> Dominic Chiu, "The East is Green China's Global Leadership in Renewable Energy", *CSIS*, 2017, p.5.

non-fossil fuels. When we say non-fossil fuels, beside renewables like hydro, wind and solar, nuclear energy is also accounted as it is recognized as clean energy.

The renewable energy sector has experienced a rapid growth domestically, however renewable energy companies in China have started to face a challenge with proposals to cut wind and solar tariffs starting from 2018.<sup>50</sup> In order to keep the growth of the sector, the companies started to look for opportunities in overseas.

In recent years, the government has started to support the renewable energy investments of Chinese companies in other countries more than fossil fuel investments. With that strong support, China has become the first country in world when it comes to clean energy investments. Unlike the US government's retreatment from the Paris Agreement and the governmental decision to cut loans for environmental studies, China has the political will and economic capability needed to become a global leader in renewable energy sector.<sup>51</sup> Therefore, European Union (EU) countries had to cooperate with China in renewable energy, in order to reach the global environment targets.

Today, China is the largest producer of solar panels, wind turbines, batteries and electric vehicles and exceeded its own 2020 targets in installed capacity of hydropower, solar PV and wind.<sup>52</sup> During the implementation of the 12th Five Year Plan, the country has realized 40% of the renewable energy investments in

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<sup>50</sup> Tim Buckley & Simon Nicholas, "China's Global Renewable Energy Expansion", *Institute for Energy Economics and Financial Analysis*, January 2017, p.6.

<sup>51</sup> Dominic Chiu, "The East is Green China's Global Leadership in Renewable Energy", *CSIS*, 2017, p.4.

<sup>52</sup> "China: Key themes for 2020", *The Oxford Institute for Energy Studies*, January 2020, p.9.

the whole world while leaving behind US and EU investments in the same sector.<sup>53</sup>

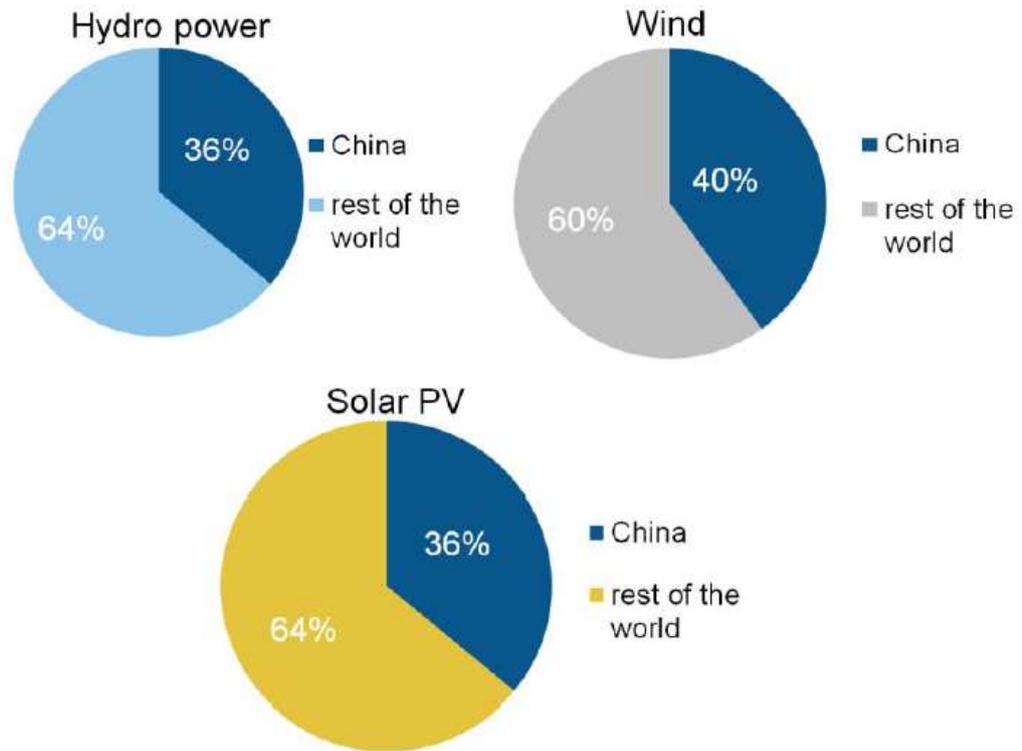


Chart 1 China's Share of Global Renewable Capacity Growth, 2015-21<sup>54</sup>

Source: IEA World Energy Outlook 2016

Chart 1 shows the expected growth in the share of Chinese renewable energy investments within the world renewable energy investments by 2021. China will account for 36% of hydro power investments, 40% of wind investments and 36% of solar PV investments of the world investments in the relevant sectors. Alone

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<sup>53</sup> Wei Shen & Lei Xie, "The Political Economy for Low-carbon Energy Transition in China: Towards a New Policy Paradigm?", *New Political Economy*, 23:4, 2017, p.407.

<sup>54</sup> Tim Buckley & Simon Nicholas, "China's Global Renewable Energy Expansion", *Institute for Energy Economics and Financial Analysis*, January 2017, p.5.

in 2016, the most important deals in the world renewable sector have been realized by Chinese companies.<sup>55</sup>

Regarding the solar energy sector, five of the world's six biggest solar-module manufacturing companies are in China, and in wind sector Chinese Company "Goldwind" has become the largest wind-turbine manufacturer in the world.<sup>56</sup> While Chinese companies are vastly expanding their influence in other countries in recent years, investing in China's renewable energy sector is also advantageous for foreign companies. These companies can benefit from great experiences of Chinese companies in the sector by partnering with them as they will decrease their risk of technologically left behind. On the other hand, SOCs of China are not facing the risk to find finance for their renewable investments as state banks provide the necessary loans for them. However, since for private companies the most important difficulty is to find finance they need to partner with foreign companies in order to attract foreign loans and be able to compete in the sector.

Along with renewable energy investments, Chinese government also supports clean energy technologies to meet the environmental targets. China now has the world's largest electric vehicles market with a capacity of 2.3 million battery-electric and plug-in hybrid vehicles in 2018, which accounts 45% of the world.<sup>57</sup> Finally in nuclear energy, China is expected to become the leader in nuclear energy capacity by 2030, overtaking US and Europe. In 2019 many projects

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<sup>55</sup> Dominic Chiu, "The East is Green China's Global Leadership in Renewable Energy", *CSIS*, 2017, p.3.

<sup>56</sup> Tim Buckley & Simon Nicholas, "China's Global Renewable Energy Expansion", *Institute for Energy Economics and Financial Analysis*, January 2017, p.2.

<sup>57</sup> "China: Key themes for 2020", *The Oxford Institute for Energy Studies*, January 2020, p.9.

were announced in China which have not started to be constructed yet.<sup>58</sup> As of January 2020, 47 nuclear power reactors were in operation in China, which generated 45.6 GW of energy.<sup>59</sup>

## **2.2. China's Energy Policy Towards the Caspian Region**

Before the dissolution of the Soviet Union, the Caspian Sea had two littoral states which were Union of Soviet Socialist Republics (USSR) and Iran and the exploitation of the resources located in the Caspian Sea was governed by treaties among USSR and Iran. However, after 1991, the number of littoral states increased to 5 and the long standing territorial disputes have begun. As the Caspian Basin has vast amount of oil and gas reserves, the countries has started to struggle to claim ownership on the offshore resources. Therefore, different arguments emerged whether it is a lake or sea which will determine the allocation of the seabed between the coastal countries. Because of these unresolved disputes and overlapping claims over the territory, the countries coasting the Caspian Sea have not been able to fully extract the natural resources in the Caspian Basin.

After 22 years of negotiations, on 12<sup>th</sup> of August 2018 the five littoral states have signed “The Convention on the Legal Status of the Caspian Sea” which paves the way for the extraction of oil and gas resources and the implementation of new cross border pipelines. According to Article 14.3 of the Convention, it is stated that “Submarine cables and pipelines routes shall be determined by agreement with the Party the seabed sector of which is to be crossed by the cable or

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<sup>58</sup> “World Energy Outlook 2019”, *International Energy Agency*, 2019, p.266.

<sup>59</sup> “How is China's Energy Footprint Changing?”, *China Power*, retrieved from: <https://chinapower.csis.org/energy-footprint/>

pipeline.”<sup>60</sup> This article means that when it comes to the construction of an oil or gas pipeline, the countries only need to obtain an approval from countries that have jurisdiction over the territories on the pipeline route. However, article 14.2 of the Convention may jeopardize this positive outcome as it is stated that projects for the construction of pipelines should be in compliance with the international regulations regarding environmental issues, for instance the Framework Convention for the Protection of the Marine Environment of the Caspian Sea.<sup>61</sup> Based on this article of the Convention, coastal countries may oppose projects that contradict with their interests under the pretext of environmental concerns.

While the Caspian Basin is considered to have large amounts of oil and gas reserves, it is relatively small compared to other regions in the world. However, these resources still hold major geopolitical importance to external powers, because they are not controlled by an organization such as OPEC or by a great power like Russian Federation.<sup>62</sup> In addition, the increasing instability of energy supplies from the Middle Eastern countries has brought the Caspian Basin into the front as an alternative resource for the largest energy consumer countries in the world.<sup>63</sup> Therefore, the region offers the great powers such as US and EU even China a chance to diversify their energy supplies. In order to fulfill their own interests with the resources of the region, these powers started to compete with each other and this competition created a new discourse in the literature

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<sup>60</sup> Convention on the Legal Status of the Caspian Sea, (2018), Access Date: 20.05.2020, Website URL: <http://en.kremlin.ru/supplement/5328>.

<sup>61</sup> Convention on the Legal Status of the Caspian Sea, (2018), Access Date: 20.05.2020, Website URL: <http://en.kremlin.ru/supplement/5328>.

<sup>62</sup> Andreas Heinrich & Heiko Pleines, “Introduction: The Political Economy of The Caspian Oil and Gas States”, *Journal of Eurasian Studies*, 6:2015, p.89.

<sup>63</sup> Christina Y. Lin, “The Caspian Sea: China’s Silk Road Strategy Converges with Damascus”, *China Brief*, 17:2010, p.9.

which is called “The New Great Game”. A complex and shifting game– and in this new great game, only change is certain.<sup>64</sup>

Despite the efforts of these great powers to gain access to the Caspian resources, China has the fastest growing influence in the region thanks to its huge amount of loans and investments and also its different approach towards the countries in the region. Chinese government has not put any conditions for the loans and investments allocated to the region and has economic concerns rather than political concerns towards these countries. Therefore, China did not interfere with internal issues such as democratization efforts and the rule of law and the implementation of human rights in the country where they invested. In order to fulfill their energy needs, China has built a strategy that involves more influence of the state owned energy companies and financial institutions rather than the direct influence of the government.<sup>65</sup> If this trend continues, it seems that EU will only get access to a smaller portion of Azerbaijani resources than hoped, the US and Russia will be excluded and China will have the most important influence especially in the East Caspian countries.<sup>66</sup>

Although China was not one of the original players in the region, it has quickly signed several energy agreements worth of tens of billions of dollars and has become the leading trade partner with especially Kazakhstan and Turkmenistan.<sup>67</sup>

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<sup>64</sup> Jean-Pierre Cabestan, “The New Great Game in Central Asia, Energy cooperation between China and Central Asia”, *China Analysis*, 2011, p.8.

<sup>65</sup> Bobo Lo, Short term policy brief 54, China’s Energy Policy towards Central Asia, ECRAN, 2010, p.2

<sup>66</sup> Karen Smith Stegen & Julia Kuszniir, “Outcomes and Strategies in The ‘New Great Game’: China and The Caspian States Emerge as Winners”, *Journal of Eurasian Studies*, 6:2015, p.91.

<sup>67</sup> Ibid, p.93.

China has adopted an “equity approach” in its energy policy towards the Caspian countries which aims not only receiving contracted amounts of oil and gas but also to be active project partners. They acquire as much as equity possible in the production fields and other sectors by offering huge loans with generous terms. The logic behind this policy is that direct ownership of resources is the best way of ensuring project efficiency and securing uninterrupted and long term supply.<sup>68</sup> Therefore, the Caspian countries especially the Central Asian countries with high needs of investments and loans have become an attractive alternative for Chinese large SOCs like CNPC, CNOOC and Sinopec.

The reason why China is so much eager to gain access to these resources is that its oil and gas security faces several risks while the demand is abundantly increasing. The most important risk that China faces regarding its oil and gas security is the difficulties in the transportation of these resources. China receives significant amount of imports of both oil and gas from the Strait of Malacca and the traffic volume at the Strait and the US naval control there has raised serious concerns on the Chinese side.<sup>69</sup>

China has boosted its relations and trade volumes with the Caspian countries first with the establishment of SCO and later with BRI strategy which covers investments and trade with all Eurasia.

### **2.2.1. Shanghai Cooperation Organization**

In 1996 the Shanghai Five was founded by China, Kazakhstan, Kyrgyzstan, Russia and Tajikistan and the Shanghai Cooperation Organization (SCO) was established by the leader of the five countries plus Uzbekistan in 2001 in order to

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<sup>68</sup> Bobo Lo, “Short term policy brief 54, China’s Energy Policy towards Central Asia”, *ECRAN*, 2010, p.4.

<sup>69</sup> Christina Y. Lin, “The Caspian Sea: China’s Silk Road Strategy Converges with Damascus”, *China Brief*, 17:2010, p.10.

enhance political, economic and military cooperation between these countries. In 2017 India and Pakistan have become members of the organization.

During the Moscow Summit held in 2005, the SCO has prioritized the implementation of joint energy projects.<sup>70</sup> Then, in 2006 at the SCO Summit in Astana, Putin proposed the SCO to become an “energy club” since the organization is consisted of world’s important oil and gas producers and by this proposal it was thought by many scholars that Putin aimed to build a gas cartel. This cartel would be equivalent of an OPEC for natural gas and would enable Russia to set a global market price for gas.<sup>71</sup> However this proposal could not be implemented due to the competition between Russia and China within the organization especially regarding energy issues. China has signed bilateral agreements with the member countries and also with Turkmenistan in terms of oil and gas trade instead of enhancing the energy cooperation collaboratively within the SCO. Therefore, it may be seen as SCO was a basis for China to enhance bilateral energy relations with the Caspian countries.

China’s most important attempt to have closer relations with the Caspian countries has been the launch of BRI strategy in 2013. Since the introduction of the BRI, not only the Caspian countries but also all Eurasian countries have been benefitting from huge Chinese loans and investments.

### **2.2.2. Belt and Road Initiative**

In 2013 President Xi Jinping announced the Belt and Road Initiative (BRI) as China’s strategy to increase cooperation between Asian and European countries.

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<sup>70</sup> Ralph M. Wrobel, “China’s New Energy Geopolitics: The Shanghai Cooperation Organization and Central Asia”, *ASIEN* 133, October 2014, p.37.

<sup>71</sup> Stephen Blank, “The Shanghai Cooperation Organization As an “Energy Club”, Portents for the Future”, *CACI Analyst*, October 2006, Access Date: 20.05.2020, Website URL: <https://www.cacianalyst.org/publications/analytical-articles/item/11121-analytical-articles-caci-analyst-2006-10-4-art-11121.html>.

In time the geographic and strategic scope of the Initiative has expanded so that it covers 141 countries and 29 international organizations as of 2019.<sup>72</sup> The strategic scope of the Initiative has broadened to five major goals which are facilities connectivity, uninterrupted trade, financial connectivity, policy coordination and people to people bonds.<sup>73</sup> So far, several projects approved under BRI have a potential of total 1.2-1.3 trillion USD investment by 2027.<sup>74</sup>

The BRI, launched by China has a different approach towards Caspian states and all Eurasia than the approaches of other external powers like US, European Union and Russian Federation. The difference from the policies of different powers can be seen at President Xi Jinping's speech, in which he defines and explains the scope of the BRI:

We are ready to share practices of development with other countries, but we have no intention to interfere in other countries' internal affairs, export our own social system and model of development, or impose our own will on others. In pursuing the Belt and Road Initiative, we will not resort to outdated geopolitical maneuvering. What we hope to achieve is a new model of win-win cooperation.<sup>75</sup>

The different approach of China has been embraced by especially East Caspian countries which had a great need of foreign direct investment in order to be able

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<sup>72</sup> Philipp Galkin & Dongmei Chen & Junyuang Ke, "China's Energy Investment Through The Lens of The Belt and Road Initiative", *KAPSARC*, December 2019, p.4.

<sup>73</sup> Almir Mustafić, "China's One Belt One Road and Energy Security Initiatives: A Plan to Conquer The World", *Inquiry 153*, October 2017, p.160.

<sup>74</sup> Philipp Galkin & Dongmei Chen & Junyuang Ke, "China's Energy Investment Through The Lens of The Belt and Road Initiative", *KAPSARC*, December 2019, p.4.

<sup>75</sup> *Ibid*, p.7.

to conduct exploration and exploitation activities in their oil and gas fields and also increase their energy transportation grids.

As it is mentioned before, China aims to develop alternative energy routes in order to enhance its energy security due to risks of the transportation of energy supplies especially from Malacca Strait. Therefore, with the BRI China announced six economic corridors which can be seen as alternative energy routes for China.

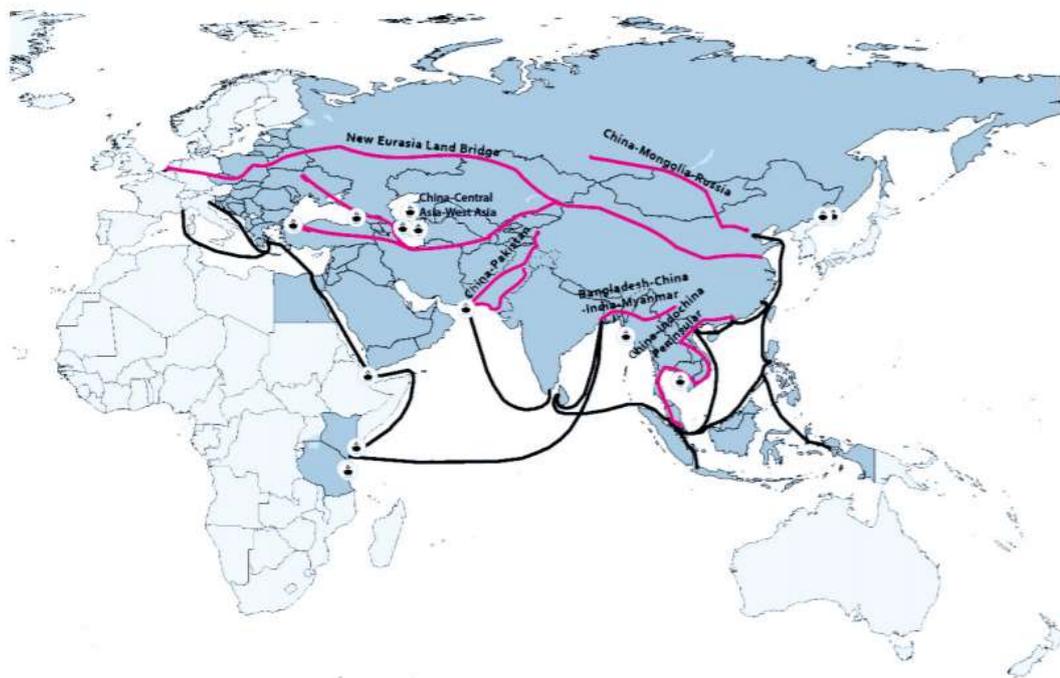


Figure 5 Six Economic Corridors of BRI<sup>76</sup>

As it can be seen from Figure 5, with the northwest channel (New Eurasia Landbridge) Central Asian oil and gas, with northeast channel (China Mongolia Russia) Russian oil and gas, with south channel (Bangladesh, China, India, Myanmar) Myanmar oil and gas can be transported more safely to China.

<sup>76</sup> “Belt and Road Economics Opportunities and Risks of Transport Corridors”, *World Bank*, 2019, p.3.

The countries on the BRI route possess large amount of oil and gas reserves and they are expected to dominate the global oil and gas trade in the medium term. Therefore, most of the loans from China have been directed to the energy sector in BRI projects which accounts to approximately 50 billion USD.<sup>77</sup> The loans and investments under BRI are mostly financed by the state owned banks of China like CDB and CHEXIM.

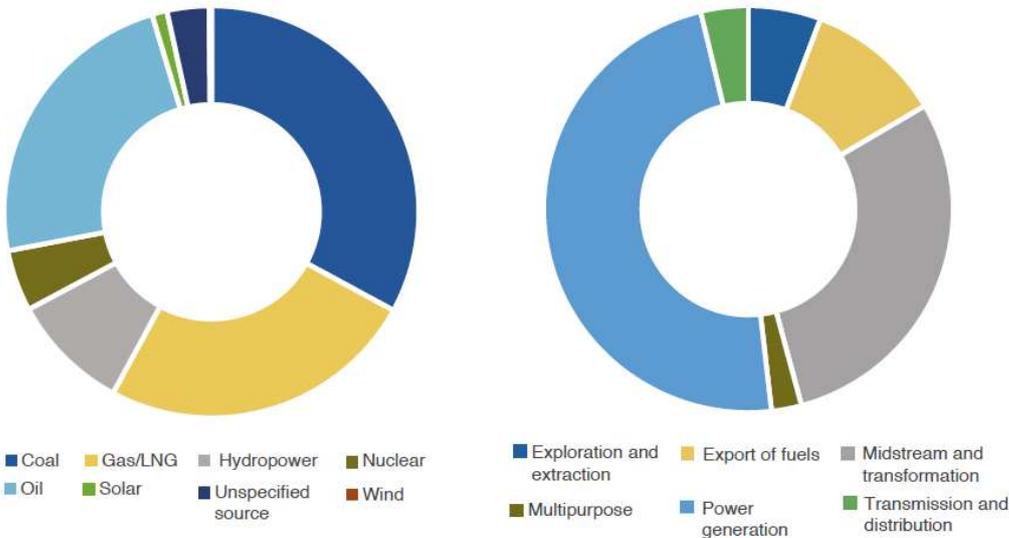


Chart 2 Energy loans by the CDB and CHEXIM by fuel source and sector under BRI, 2000-2018<sup>78</sup>

Source: Boston University.

In recent years, under BRI, many renewable energy projects have been realized, however renewables are consisting a small proportion in the total energy loans provided by these two banks. In addition, the loans of these banks are allocated

<sup>77</sup> Thomas S. Eder & Jacob Mardell, “Powering The Belt and Road China Supports Its Energy Companies’ Global Expansion and Prepares The Ground for Potential New Supply Chains”, *Merics*, 2019, Access Date: 20.05.2020, Website URL: <https://www.merics.org/en/bri-tracker/powering-the-belt-and-road>.

<sup>78</sup> Philipp Galkin & Dongmei Chen & Junyuang Ke, “China’s Energy Investment Through The Lens of The Belt and Road Initiative”, *KAPSARC*, December 2019, p.16.

mostly in power generation sector which makes up 48% of the total energy loans.

Along with all these investments and loans provided under BRI should not be seen only as a result of targeting to solve the energy security problem and to increase regional trade. China is also investing in different sectors I other countries in order to develop foreign markets to prepare them for future high level of consumption.<sup>79</sup>

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<sup>79</sup> Almir Mustafić, “China’s One Belt One Road and Energy Security Initiatives: A Plan to Conquer The World”, *Inquiry 153*, October 2017, p.182.

## CHAPTER 3

### CHINA-EAST CASPIAN STATES ENERGY RELATIONS

During the Soviet Union times East Caspian countries and also other Central Asian countries had vulnerable economies based on one commodity like cotton, wheat, oil or gas. After they gained independence their economies faced a substantial transition while diversification was at the lowest degree. Even though these countries especially East Caspian countries which are Kazakhstan and Turkmenistan have vast amount of oil and gas reserves, they were not able to fully exploit oil and gas fields in their territory which is still a problematic issue. These significant oil and gas reserves also attracted the attention of great powers like US and EU, while East Caspian states seriously need large amount of investments in order to the full extraction of their natural resources. Despite all the attempts of US and EU, in recent years China has become the dominant power in the region providing that China does not require political improvements or democratic standards in return for credits and loans. According to Bobo Lo, there are four reasons that caused a change in China's strategic role in the region: 1. China's growing dependence on energy imports, 2. The rise in global oil prices after 1999, 3. Difficulties in Sino-Russian energy relations, 4. 9/11 and American led military intervention in Afghanistan which reduced the influence of Russia in the region.<sup>80</sup>

President Xi Jinping made his first visit to East Caspian states and also to other Central Asian countries in 2013, which has opened a new chapter in bilateral relations with these countries in the fields of transportation, energy, communication and agriculture. President Xi used this visit to outline his

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<sup>80</sup> Bobo Lo, "Short term policy brief 54, China's Energy Policy towards Central Asia", *ECRAN*, p.3.

conceptualization of the “New Silk Road Economic Belt” under the BRI.<sup>81</sup> After the announcement of BRI, bilateral trade between China and Central Asian countries has significantly increased. Total trade between China and Central Asian countries was less than 1 billion USD in 1990s while it has increased to 30 billion USD in 2017.<sup>82</sup> Under the umbrella of BRI, China has provided large amounts of loans to many countries included in BRI and implemented many projects in different sectors.

In this context, taking into consideration of the geostrategic location of Central Asia which constitutes the Silk Road of BRI, China has implemented several projects in the region worth up to 136.2 billion USD. (Table 1)

Table 1 Total Investment of Chinese Projects in Central Asia (USD mln)<sup>83</sup>

	Total by country	Rail and road connectivity	Energy connectivity	Industry	Agriculture and food	Mineral and petroleum exploration and processing	Finance and IT	People-to- people projects
<b>Total by sector</b>	<b>136 251.06</b>	<b>23 499.74</b>	<b>35 693.8</b>	<b>12 299.55</b>	<b>1 451.88</b>	<b>55 159.65</b>	<b>8 100</b>	<b>46.44</b>
Kazakhstan	90 862.43	14 539.3	18 849.5	10 545.5	1 049.63	37 778.5	8 100	NA
Turkmenistan	24 842.5	1 402.5	9 410	NA	NA	14 03	NA	NA
Tajikistan	10 518.7	4 515.9	4 516	679.8	342	465	NA	NA
Kyrgyzstan	5 391.68	1 773.04	2 713	150.8	31.55	676.85	NA	46.44
Uzbekistan	4 635.75	1 269	205.3	923.45	28.7	2 209.3	NA	NA

<sup>81</sup> Zhuwei Wang, “Securing Energy Flows from Central Asia to China and the Relevance of the Energy Charter Treaty to China”, *Energy Charter Secretariat Knowledge Centre*, 2015, p.8.

\*Data on the 261 projects were gathered by one researcher from each Central Asian country and were drawn from official statistics, local and international media news, government press releases, interviews and reports. Data collection was carried out between August 2018 and January 2019.

<sup>82</sup> Pier Paolo Raimondi, “Central Asia Oil and Gas Industry - The External Powers’ Energy Interests in Kazakhstan, Turkmenistan and Uzbekistan”, *Fondazione Eni Enrico Mattei Working Paper*, March 2019, p.9.

<sup>83</sup> Farkhod Aminjonov & Alina Abylkasymova & Anna Aimée & Bahtiyor Eshchanov & Daniyar Moldokanov & Indra Overland & Roman Vakulchuk, “BRI in Central Asia: Overview of Chinese Projects”, *Central Asia Regional Data Review 20*, 2019, p.3.

Table 1 shows Chinese projects implemented in Central Asian countries by sectors under the BRI. According to this, Kazakhstan and Turkmenistan have attracted most of the Chinese investments especially in energy connectivity and mineral and petroleum exploration and processing sectors. In order to secure its energy supplies, East Caspian states emerge as an alternative market for China from which it imports large amounts of oil and gas while also gets involved in the upstream energy sector of these countries by acquiring significant stakes in the major oil and gas fields.

In this chapter, China's energy relations with East Caspian countries will be examined first by focusing on energy sectors of the two countries mostly oil and gas, since these countries have less renewable energy potential compared to other Central Asian countries. After giving information on energy sectors of Kazakhstan and Turkmenistan, the energy relations of these countries with China will be examined in the context of large amount of investments made by Chinese national oil and gas companies.

### **3.1. Chinese Energy Investments in Kazakhstan**

#### **3.1.1. Kazakhstan Energy Sector**

Possessing vast amount of natural resources, Kazakhstan was the main supplier of hydrocarbon resources to the Soviet industrial machine. According to Worldometers<sup>84</sup>, the country ranks 10th in the world and accounting for 2.48% of the world's total coal reserves, 12th in the world and accounting for 1.82% of world's oil reserves and ranks 15th in the world with having 1.23% of world's gas reserves.

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<sup>84</sup> Kazakhstan Energy, Worldometers, Access Date: 25.05.2020, Website URL: <https://www.worldometers.info/energy/kazakhstan-energy/>

After Kazakhstan gained independence from the Soviet Union, the country experienced a state building process and its economy was vulnerable since the whole economy was depended on natural resources and the energy sector could be considered the most developed sector comparing to other sectors. Energy sector is still the dominant sector in the country exports of oil and oil products amounted to 70% of total exports in 2018.<sup>85</sup>

Oil and gas exploration and production in Kazakhstan is governed by “The Law on Suboil and Suboil Use” (Suboil Use Law). The state plays a significant role in oil and gas sectors through the activities of the state owned company KazMunaiGaz. KazMunaiGaz is a vertically integrated oil and gas company which is responsible for upstream and downstream operations and also management of the government stakes in Production Sharing Agreements (PSAs)<sup>86</sup> on the oil and gas fields.

### **3.1.1.1. Oil**

More than 90% of the oil reserves of Kazakhstan are concentrated in 15 largest oil fields located in Aktobe, Atyrau, West Kazakhstan, Karaganda, Kyzylorda and Mangistau and around 70% of the hydrocarbon reserves are concentrated in the West of Kazakhstan particularly in the Caspian Basin.<sup>87</sup> Total oil production was 26.6 million tons in 1991 and it increased to 86.9 million tons in 2017 while it is expected to reach 104 million tons by 2025 thanks to the development of three major oil and gas fields Tengiz, Karachaganak and Kashagan.<sup>88</sup>

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<sup>85</sup> “Business Outlook in Kazakhstan”, *Deloitte CIS Research Centre*, 2019, pp.9-10.

<sup>86</sup> “Kazakhstan Oil and Gas Report Q1 2020”, *Fitch Solutions*, 2020, p.53.

<sup>87</sup> “Integrated Annual Report”, *KazMunaiGas Exploration Production Jsc*, 2017, p.11.

<sup>88</sup> Pier Paolo Raimondi, “Central Asia Oil and Gas Industry - The External Powers’ Energy Interests in Kazakhstan, Turkmenistan and Uzbekistan”, *Fondazione Eni Enrico Mattei Working Paper*, March 2019, p.22.

In order to fully exploit the oil and gas resources, Kazakhstan has needed necessary technologies and knowledge. Therefore, at the end of 1990s the country signed PSAs with foreign companies like ChevronTexaco, Exxonmobil, ENI and Royal Dutch Shell etc.<sup>89</sup> However, after 2000 Kazakhstan decided to regain control over the energy sector through a state owned company and KazMunaiGaz was established in 2002 which acquired back the stakes in strategic projects. Along with foreign companies, currently KazMunaiGaz has important stakes in all major oil fields.

In 1992, American oil company Chevron has entered Kazakhstan's market with a 20 billion USD investment with a 40 year deal to develop the Tengiz field.<sup>90</sup> The giant Tengiz field which is considered as one of the largest oil fields in world, is operated by Tengizchevroil consortium of Chevron (50%), Exxonmobil (25%), KazMunaiGaz (20%) and Lukarco (5%) subsidiary of Lukoil. Recently, the foreign direct investment for the expansion of the project was taken in July 2016 at nearly 36.8 billion USD with the first oil delivery planned in 2022.<sup>91</sup>

The Kashagan offshore oil and gas field was discovered in 2000 and it is described as the fifth largest field in the world with high amount of oil and gas reserves located in the North of the Caspian Sea. The estimated oil reserves of the field are 38 billion barrels and estimated gas reserves are more than 1 trillion cubic meters.<sup>92</sup> The development plan has been approved in 2004 with a 136 billion USD worth project which envisages production of about 13 billion barrels

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<sup>89</sup> Pier Paolo Raimondi, "Central Asia Oil and Gas Industry - The External Powers' Energy Interests in Kazakhstan, Turkmenistan and Uzbekistan", *Fondazione Eni Enrico Mattei Working Paper*, March 2019, p.24.

<sup>90</sup> Ariel Cohen & James Grant, "Future Calling: Infrastructure Development in Central Asia", *International Tax and Investment Center Issues Paper*, October 2018, p.13.

<sup>91</sup> "Kazakhstan Oil and Gas Report Q1 2020", *Fitch Solutions*, 2020, p.16.

<sup>92</sup> "Integrated Annual Report", *KazMunaiGas Exploration Production Jsc*, 2017, p.14.

in 3 phases. Currently, the field is operated by the consortium called North Caspian Operating Company which is composed of Eni (16.81%), Royal Dutch Shell (16.81%), Total (16.81%), Exxonmobil (16.81%), KazMunaiGaz (16.88%), China National Petroleum Corporation (8.33%) and Inpex (7.56%).<sup>93</sup>

The Karachaganak oil and gas field is located in the West part of Kazakhstan with also high oil and gas reserves containing more than 1.2 billion tons of oil and 1.3 trillion cubic meters of gas.<sup>94</sup> The field was discovered in 1979 and the development has started in 1984. The PSA to develop the field was signed between Kazakhstan and foreign companies in 1997 and is valid for 40 years. The field is currently being developed by the consortium called Karachaganak Petroleum Operating which is composed of Eni (29.25%), Shell (29.25%), Chevron (18%), Lukoil (13.5%) and KazMunaiGas (10%).<sup>95</sup>

There are three main refineries in Kazakhstan of which Pavlodar refinery is supplied by a crude oil pipeline from western Siberia while Atyrau refinery and Shymkent refinery are supplied by domestically produced crude oil. These refineries operate at high utilization rates so that the country produced nearly 435,000 b/d of refined products in 2019 which is more than sufficient to supply the domestic demand of 390,700 b/d.<sup>96</sup>

Given the increasing amount of oil production in Kazakhstan, the country aims to become a major oil exporter country by boosting the trade with other countries. However, as the country was part of the Soviet Union there was a link only between Central Asian states and Russia for oil transportation. Therefore,

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<sup>93</sup> “Kazakhstan Oil and Gas Report Q1 2020”, *Fitch Solutions*, 2020, p.15.

<sup>94</sup> “Integrated Annual Report”, *KazMunaiGas Exploration Production Jsc*, 2017, p.14.

<sup>95</sup> Karachaganak Petroleum Operating official website, Access Date: 25.05.2020, Website URL: <https://www.kpo.kz/en/about-kpo/parent-companies.html>.

<sup>96</sup> “Kazakhstan Oil and Gas Report Q1 2020”, *Fitch Solutions*, 2020, p.20.

since boosting its oil production by partnering with foreign investors was not enough to increase the exports, Kazakhstan had strongly committed to build independent and alternative export routes.

Kazakhstani oil is transported to Russia by two pipelines which are Atyrau-Samara system and Caspian Pipeline Consortium Pipeline (CPC). Atyrau-Samara system is operated in Kazakhstan by the state-owned company KazTransOil and in Samara by Russian state-owned company Transneft. The first success of Kazakhstan to build an independent oil pipeline is the CPC Pipeline which is running to Russia and it is not operated by the Russian company Transneft. The construction of CPC started in 1999 and completed in 2001 and the pipeline transports oil from Kazakhstan's Tengiz fields to the Black Sea port of Novorossiysk via Russia.<sup>97</sup> This pipeline is considered to be independent since it has not been fully operated by Russian companies, whereas Russian government owns a 24% stake and Lukarco (subsidiary of Lukoil) owns an additional 12.5% stake in the consortium.<sup>98</sup>

On the other hand, Kazakhstan exports significant amount of oil to China via Kazakhstan-China oil system. Kazakhstan-China oil system which is composed of three phases, was built by a joint venture between KazMunaiGas and the China National Oil and Gas Development Corporation (CNODC) and it is considered the first oil pipeline running to China. The first section of the pipeline from Aktobe and Atyrau was completed in 2003, the second section of the

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<sup>97</sup> Pier Paolo Raimondi, "Central Asia Oil and Gas Industry - The External Powers' Energy Interests in Kazakhstan, Turkmenistan and Uzbekistan", *Fondazione Eni Enrico Mattei Working Paper*, March 2019, p.24.

<sup>98</sup> Pier Paolo Raimondi, "Central Asia Oil and Gas Industry - The External Powers' Energy Interests in Kazakhstan, Turkmenistan and Uzbekistan", *Fondazione Eni Enrico Mattei Working Paper*, March 2019, p.41.

pipeline from Atasu to Alashankou was completed in 2005 and the third section of the pipeline from Kenkiyak to Kumkol was completed in 2009.<sup>99</sup>

In addition to Russia and China, Kazakhstan's oil is being transported also to the European countries via rail or the Caspian Sea. Oil has been transported from Aktau or Atyrau ports then shipped across the Caspian Sea and has been loaded into Baku-Tbilisi-Ceyhan pipeline since 2013 or the Northern Route pipeline (Baku-Novorossiysk) to supply mainly Europe.<sup>100</sup> While European countries are mostly involved in Kazakhstan's oil sector along with China, they also constitute the significant part in the country's oil exports.

### **3.1.1.2. Natural Gas**

Having large amounts of oil reserves, Kazakhstan also holds significant natural gas reserves which is mostly produced from Kashagan, Tebriz and Karachaganak oil and gas fields. The production has risen in recent years mainly due to development projects in these 3 fields and the rest of the production comes from the oil and gas fields in western Kazakhstan. In 2018, from Kashagan 5.46 bcm of gas, from Tengiz 9.2 bcm of gas and from Karachaganak 10.3 bcm of gas has been produced.<sup>101</sup>

Given the rising numbers of production, the country has less gas consumption compared to other Central Asian countries because the share of coal in the country's energy mix is still much higher than natural gas. Therefore,

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<sup>99</sup> KazTransOil Official Website, Access Date: 25.05.2020, Website URL: [https://www.kaztransoil.kz/en/about\\_the\\_company/investment\\_projects/](https://www.kaztransoil.kz/en/about_the_company/investment_projects/).

<sup>100</sup> S. Frederic Starr, "The Baku-Tbilisi-Ceyhan Pipeline: School of Modernity", in S.F.Cornell, *The Baku-Tbilisi-Ceyhan Pipeline: Oil Window to the West*, Sweden: Central Asia-Caucasus Institute and Silk Road Studies Program, 2005, p.14.

<sup>101</sup> Simon Pirani, "Central Asian Gas: Prospects for The 2020s", *Oxford Institute for Energy Studies*, December 2019, p.26.

Kazakhstan has been increasing its natural gas exports in recent years especially after the completion of Beineu-Shymkent pipeline from which the gas is exported to China. Natural gas exported to China was 0.4 bcm between 2014 and 2016 and has increased to 1.1 bcm in 2017 and increased sharply to 5.8 bcm in 2018.<sup>102</sup> In 2019, Astana has agreed to double its gas exports to China from 5.8 to 10 bcm per year.<sup>103</sup> On the other hand, Kazakhstan is also an important transit country for natural gas supplies for Russian gas exported to China.

### 3.1.1.3. Coal

Kazakhstan ranks 10th in the world in terms of coal reserves with 28.2 million tons and the country possesses about 2% of the world's total coal reserves.<sup>104</sup> Current coal production is around 95-96 million tons per year and the largest basins for coal production are Ekibastuz, Karaganda and Turgai.<sup>105</sup> Russia has been the primary destination for Kazakhstan coal exports so that, Russia received 81% of the Kazakhstan's coal exports and exports increased by 14.7% to 24.5 million tons in 2016.<sup>106</sup> Recently, the government has focused on the modernization of the coal mines to produce coal more efficiently through new technologies. According to this, by the early 2020s more than 4 billion USD will

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<sup>102</sup> Simon Pirani, "Central Asian Gas: Prospects for The 2020s", *Oxford Institute for Energy Studies*, December 2019, p.30.

<sup>103</sup> Pier Paolo Raimondi, "Central Asia Oil and Gas Industry - The External Powers' Energy Interests in Kazakhstan, Turkmenistan and Uzbekistan", *Fondazione Eni Enrico Mattei Working Paper*, March 2019, p.41.

<sup>104</sup> Kazakhstan Coal, Worldometers, Access Date: 25.05.2020, Website URL: <https://www.worldometers.info/coal/kazakhstan-coal/>.

<sup>105</sup> T.A. Alimbaev & Zh.S. Mazhitova & B.K. Omarova & Zh.B. Nurkina, "Environmental Problems in The Kazakhstan Coal Industry and Their Solutions", *IOP Conference Series: Materials Science and Engineering*, 2019, p.2.

<sup>106</sup> Debo Adams, "Kazakhstan's Beating Heart", *IEA Clean Coal Centre*, October 2019, p.3.

have been allocated to the modernization projects by the Kazakh coal mining industry and also 2 billion USD has been budgeted.<sup>107</sup>

#### **3.1.1.4. Renewable Energy**

In Central Asian countries renewable energy sector lacks competitiveness due to high subsidies in fossil fuel projects, low electricity prices and lack of technological and institutional knowledge. However, these countries are ideal locations especially for wind and solar energy.

Kazakhstan is the most ambitious country in the region in terms of renewable energy sector development with the “National Concept for Transition to a Green Economy” adopted in 2013. This concept outlines a plan to increase the share of alternative energy resources in electricity generation to 3% by 2020, to 30% by 2030 and to 50% by 2050.<sup>108</sup> In this context, a special Green Economy Council has been established within the Ministry of Energy in order to the successful implementation of the targets set in the Green Economy targets.

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<sup>107</sup> Debo Adams, “Kazakhstan’s Beating Heart”, *IEA Clean Coal Centre*, October 2019, p.4.

<sup>108</sup> Elena Shadrina, “Renewable Energy in Central Asian Economies Role in Reducing Regional Energy Insecurity”, *Asian Development Bank Institute*, August 2019, p.15.

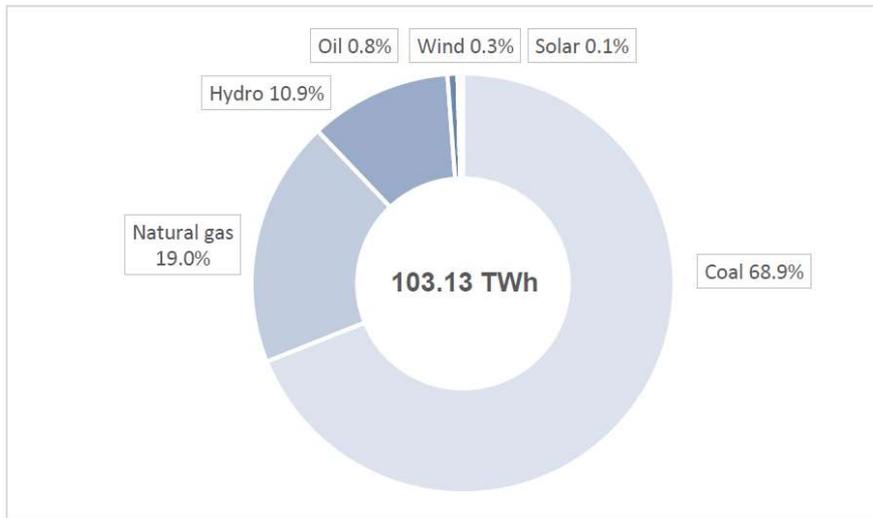


Chart 3 Electricity Generation in Kazakhstan by Source, 2017<sup>109</sup>

Source: IEA

The total electricity generation in Kazakhstan was 103.13 Terrawatt / hour (TWh) in 2017 and the majority of the source to generate electricity is coal with a share of 68.9% while the share of renewables is 11.3%. Therefore, the targets set in the Green Economy Concept can be considered too ambitious given these shares but are still crucial attempts towards increasing the usage of cleaner and sustainable energy resources.

In 2017 Kazakhstan hosted the World Expo under the slogan “Future Energy” in order to attract foreign investors and bring high technology to develop the renewable energy sector. To facilitate the development of the renewable energy sector government of Kazakhstan introduced policies for investors which are;

- (1) Guaranteed purchase of all produced renewable electric energy for 15 years;
- (2) Exemption from renewable energy transmission services payment;
- (3) Priority dispatching of renewable electrical energy;
- (4) Tax reduction and tariff exemption for the owner of renewable power stations;
- (5) Land and equipment subsidies from the government.<sup>110</sup>

<sup>109</sup> “Investing Renewable Energy in Central Asia”, *Leader Associates White Paper*, 2019, p.5.

<sup>110</sup> “Investing Renewable Energy in Central Asia”, *Leader Associates White Paper*, 2019, p.9.

The government's attempts to bring foreign investment and technical know-how which is indispensable for renewable energy sector development attracted companies like ABB Energy Management, KB Enterprises, Solarnet Investment GmbH, United Green and Nomad Solar.<sup>111</sup> However, the decisive role in renewable energy investments in Kazakhstan belongs to international financial institutions, mostly to European Bank for Reconstruction and Development (EBRD) and also to Asian Development Bank (ADB), Eurasian Development Bank and Green Climate fund.<sup>112</sup> The EBRD has been involved in Kazakhstan since 2008 when the Sustainable Energy Action Plan was signed with the government of Kazakhstan. EBRD assisted the government to set the legal framework for renewable energy. Based on the assistance of EBRD, the government passed the Renewable Energy Law in 2009, however it was not sufficient in terms of clear rules and regulations which created high uncertainty and risks for the foreign investors.<sup>113</sup>

Kazakhstan has potential of wind energy with a capacity of about 1.820 billion KW/h<sup>114</sup> and in 2018 the total installed wind energy capacity was 121 MW.<sup>115</sup> The massive potential of wind power may be attractive for foreign investors however they face risks since the market is still immature. The Wind Power Market Development Initiative by the United Nations Development Programme (UNDP) and the government of Kazakhstan, financed by the Global

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<sup>111</sup> Elena Shadrina, "Renewable Energy in Central Asian Economies Role in Reducing Regional Energy Insecurity", *Asian Development Bank Institute*, August 2019, p.15.

<sup>112</sup> *Ibid.*

<sup>113</sup> "Renewable Energy in Kazakhstan", *European Bank for Reconstruction and Development (EBRD) and Climate Investment Funds*, 2015, p.6.

<sup>114</sup> Zhuwei Wang, "Securing Energy Flows from Central Asia to China and the Relevance of the Energy Charter Treaty to China", *Energy Charter Secretariat Knowledge Centre*, 2015, p.26.

<sup>115</sup> "Investing Renewable Energy in Central Asia", *Leader Associates White Paper*, 2019, p.7.

Environment Facility (GEF) was initiated in early 2000s aimed to develop the wind market. The project envisaged to install 5 MW wind energy however it was prevented by market barriers like lack of finance, capacity, political and institutional framework and also low electricity prices.<sup>116</sup>

Regarding hydropower potential, main hydro power resources of the country are in the eastern and south-eastern regions. Today, the 15 largest hydropower stations with a total capacity of 2.25 GW account for 13% of the country's total electricity generation.<sup>117</sup>

Table 2 Installed Hydropower Projects in Kazakhstan<sup>118</sup>

Name	Location	Capacity	Year	Funding
Almaty Cascade: 10 stations, plus one under the Institute of Innovation and Energy	Almaty oblast, Bolshaya and Malaya Almatinka rivers	46.9 MW	2016	Samruk Energo
Shulbinskaya HPS	Irtys river, East Kazakhstan oblast	702.0 MW	1987–1994	Samruk Energo
Bukhtarminskaya HPS	Irtys river, East Kazakhstan oblast	675.0 MW	1960–1966	Samruk Energo
Kapshagayskaya HPS	Ili river, Almaty oblast	364.0 MW	1970–1980	Samruk Energo
Ust-Kamenogorsk HPS	East Kazakhstan oblast Irtys river	355.6 MW	1952–1959	Samruk Energo
Moynak HPS	Charyn river Almaty oblast	300.0 MW	2011–2012	Samruk Energo, loan from China Exim bank
Shardarinskaya HPS	Syrdariya river, South Kazakhstan oblast	100.0 MW	1967	Samruk Energo
LLP 'Kaynar-AKB GES-4' Uspenovskaya HPS	Tentek river, Almaty oblast	2.5 MW	1960	National Company KEGOC (Public)
LLP 'Kaynar-AKB GES-4' Antonovskaya HPS	Lepsy river Almaty oblast	1.6 MW	1960	National Company KEGOC (Public)
Zaisanskaya HPS	Yidene river, East Kazakhstan Oblast	2.0 MW	No data	Samruk Energo
Aksu HPS-1 JSC 'TATEK'	Aksu river, Almaty oblast	1.9 MW	No data	Public JSC 'TATEK' is a national company

<sup>116</sup> “Renewable Energy in Kazakhstan”, *European Bank for Reconstruction and Development (EBRD) and Climate Investment Funds*, 2015, p.5.

<sup>117</sup> “Renewable Energy in Kazakhstan”, *European Bank for Reconstruction and Development (EBRD) and Climate Investment Funds*, 2015, p.4.

<sup>118</sup> Bahtiyor Eshchanov & Alina Abylkasymova & Farkhod Aminjonov & Daniyar Moldokanov & Indra Overland & Roman Vakulchuk, “Hydropower Potential of The Central Asian Countries”, *Central Asia Regional Data Review 19*, 2019, p.2.

Table 2 shows the installed hydropower projects in Kazakhstan.

The solar power potential of Kazakhstan is between 3.9 to 5.4 TWh and the Ministry of Energy has announced with the “Plan of Activities for Alternative and Renewable Energy” the implementation of 28 more solar energy projects which are expected to be operational by the end of 2020 with a total capacity of 713.5 MW.<sup>119</sup>

Table 3 Installed Solar Power Projects in Kazakhstan<sup>120</sup>

Name/Project description	Location	Installed capacity	Year	Funding
Burnoye Solar-1 LLC; Solar PV station "Burnoe"	Jualynskiy region, Jambyl oblast	50 MW	2014	Samruk Kazyn Investment Foundation
Samruk-GreenEnergy LLC	Kapshagay city, Almaty oblast	2 MW	2014	Samruk Kazyna Investment Foundation
Burnoe-Solar-2 LLP	Jualynskiy region, Jambyl oblast	50 MW	2016	Samruk Kazyn Investment Foundation
Bayken-U LLP	Janakorgan region, Kyzylorda oblast	0.3 MW	2017	KazAtomProm
Samruk-Green Energy LLP	Kapshagay city, Almaty oblast	0.4 MW	2017	Samruk Kazyn Investment Foundation
SKZ-U LLC	Janakorgan region, Kyzylorda oblast	0.4 MW	2014	Own funds
Aksu-Energo LLP; SES Akbay	Sayram region, South Kazakhstan Oblsat	1.MW	2015	UND and public funding
Aksu-Energo LLP; SES Ochistnoy	Shymkent city, South Kazakhstan Oblast	1 MW	2015	Settlement and Financial Center for Support of Renewable Energy Sources
GroupIndependent LLP	Munayly region, Mangystau Oblast	2 MW	2016	Public loan under a governmental program for business support

The installed solar power projects in Kazakhstan so far are listed in Table 3.

<sup>119</sup> “Renewable Energy in Kazakhstan”, *European Bank for Reconstruction and Development (EBRD) and Climate Investment Funds*, 2015, p.4.

<sup>120</sup> Bahtiyor Eshchanov & Alina Abylkasymova & Farkhod Aminjonov & Daniyar Moldokanov & Indra Overland & Roman Vakulchuk, “Solar Power Potential of The Central Asian Countries”, *Central Asia Regional Data Review 18*, 2019, p.3.

Currently, only 50 alternative energy facilities are operating in the country however, this number is expected to grow to 100 including solar, hydropower, wind and biogas facilities. There are plans to construct wind and solar power stations in South Kazakhstan near Kentau with a capacity of 50 MW per hour for wind and 30 MW per hour for solar energy. Another wind power station with a capacity of 42 MW per hour is expected to be completed in Mangistau.

### **3.1.2. China-Kazakhstan Energy Relations**

During the Soviet times, Kazakh economy was strongly linked to Russian economy, therefore at the beginning of 1990s Kazakh President decided to make attempts towards a more open economy. The ruling elite has made major economic reforms, welcoming foreign investments and the country has become the most favorable country for foreign investments in the region.<sup>121</sup>

In addition to this, since Kazakh economy is mostly dependent on the trade of natural resources, especially after the second half of 2014 with the fall of oil prices, the country faced an economic bottleneck and wanted to benefit from foreign loans. Therefore, with the announcement of BRI, Kazakhstan was the first to respond to this Initiative by linking its five year (2015-2019) domestic development program, a plan mostly focused on infrastructure, connectivity but also industrial cooperation in many sectors.<sup>122</sup> Cooperation between China and Kazakhstan and also Turkmenistan accelerated with the introduction of the BRI and China has become a strategic partner in the region. At the trade level, China has become the third largest trade partner of Kazakhstan, after the EU and Russia

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<sup>121</sup> Pier Paolo Raimondi, “Central Asia Oil and Gas Industry - The External Powers’ Energy Interests in Kazakhstan, Turkmenistan and Uzbekistan”, *Fondazione Eni Enrico Mattei Working Paper*, March 2019, p.21.

<sup>122</sup> Adil Miankhel, “Why Central Asia Chooses Chinese Investment”, *East Asia Forum*, June 2019, p.1.

as the bilateral trade increased from 460 million USD in 1996 to 18 billion USD in 2017.<sup>123</sup>

Currently, at least 22 energy companies with Chinese participation are present in Kazakhstan's oil sector and 10 of them are wholly or almost entirely controlled by China and the share of Chinese companies in the Kazakh industry is expected to exceed 40% in the coming years.<sup>124</sup>

The first significant entry into the Kazakh market by China dates back to 1997, when CNPC and Kazakhstan signed a 9 billion USD worth agreement which gave CNPC a 60% stake in AktobeMunaiGaz, a production license for Zhanazhol, Kenkiyak, Oversalt and Kenkiyak subsalt oil fields, and a contract for an exploration block and two pipelines.<sup>125</sup> Moreover, in 2003 CNPC purchased the remaining 40% stake of AktobeMunaiGaz and in 2005 purchased the Canadian company PetroKazakhstan for almost 4.3 billion USD.<sup>126</sup> However, after having bought the whole company PetroKazakhstan, the Kazakhstani government needed to interfere in this investment, since PetroKazakhstan is considered to be the second largest petroleum producer company based in Kazakhstan and also owns the largest refinery (Shymkent) in the country. The government requested CNPC to sell the one third of the company to

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<sup>123</sup> Pier Paolo Raimondi, "Central Asia Oil and Gas Industry - The External Powers' Energy Interests in Kazakhstan, Turkmenistan and Uzbekistan", *Fondazione Eni Enrico Mattei Working Paper*, March 2019, p.29.

<sup>124</sup> Karen Smith Stegen & Julia Kuszniir, "Outcomes and Strategies in The 'New Great Game': China and The Caspian States Emerge as Winners", *Journal of Eurasian Studies*, 6:2015, p.101.

<sup>125</sup> Zhuwei Wang, "Securing Energy Flows from Central Asia to China and the Relevance of the Energy Charter Treaty to China", *Energy Charter Secretariat Knowledge Centre*, 2015, p.15.

<sup>126</sup> Pier Paolo Raimondi, "Central Asia Oil and Gas Industry - The External Powers' Energy Interests in Kazakhstan, Turkmenistan and Uzbekistan", *Fondazione Eni Enrico Mattei Working Paper*, March 2019, p.30.

KazMunaiGaz.<sup>127</sup> Chinese company accepted this request and now PetroKazakhstan is controlled together by CNPC (67%) and KazMunaiGaz (33%).

In 2005, CNOOC signed a Memorandum of Understanding (MOU) with KazMunaiGaz to jointly explore the Darkhan field in the Kazakh shelf of the Caspian Sea<sup>128</sup>, which allowed China to become active in the offshore Caspian resources.

During Xi Jinping's visit in 2013, CNPC bought 8.33% of the North Caspian Operating Company (NCOC) which operates the Kashagan field<sup>129</sup>, one of the largest oil fields in the country.

Oil transportation projects are very important to China since the country needs to secure the safe transportation of the oil from Kazakhstan. Between 2005 and 2009 Kenkiyak-Kumkol and Atasu-Alashankou oil pipelines were built with Chinese investments which enable the transportation of 14 million tons of oil per year to China.<sup>130</sup>

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<sup>127</sup> Ibid.

<sup>128</sup> Sébastien Peyrouse, "Chinese Economic Presence in Kazakhstan", *China Perspectives*, 3:2008, p.44.

<sup>129</sup> Pier Paolo Raimondi, "Central Asia Oil and Gas Industry - The External Powers' Energy Interests in Kazakhstan, Turkmenistan and Uzbekistan", *Fondazione Eni Enrico Mattei Working Paper*, March 2019, p.30.

<sup>130</sup> Vladimir Paramonov & Alexei Stokov, "The Chinese Presence in Kazakhstan's Oil and Gas Industry", *Central Asia and The Caucasus*, 16:2, 2015, p.90.

Chinese company Sinopec signed an EPC contract with KazMunaiGaz for the construction of a new processing facility at the Atyrau oil refinery and also in 2012 Sinopec won a contract for the modernization of the refinery.<sup>131</sup>

In terms of gas investments, in 2007 China has reached an agreement with Central Asian countries to build a pipeline to transport Turkmen, Uzbek and Kazak gas to China. The pipeline was completed in 2009 and the capacity allocated to Kazakhstan was 10 bcm per year which can be expanded to 15 bcm per year.<sup>132</sup> In October 2018, KazTransGaz has made an agreement with PetroChina to export 10 bcm of gas starting from 2019, which means net gas exports will mark a considerable increase from 5 bcm in 2018 to at least 8.5 bcm in 2019.<sup>133</sup>

The strategic partnership signed between Kazakhstan and China in 2005 envisages to build an electricity bridge between each other.<sup>134</sup> The projects planned to be implemented under this strategy could have made Kazakhstan the largest electricity exporter to China, however the current electricity deficit in Kazakhstan prevented the implementation of this strategy.

Even though Kazakhstan has vast amount of renewable energy potential which creates a need for Chinese technology and equipment, currently Chinese companies have small scale investments in the renewable energy sector comparing to hydrocarbon sector.

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<sup>131</sup> Zhuwei Wang, “Securing Energy Flows from Central Asia to China and the Relevance of the Energy Charter Treaty to China”, *Energy Charter Secretariat Knowledge Centre*, 2015, p.15.

<sup>132</sup> Karen Smith Stegen, “Understanding China’s Global Energy Strategy”, *International Journal of Emerging Markets*, 2015, p.8.

<sup>133</sup> “Kazakhstan Oil and Gas Report Q1 2020”, *Fitch Solutions*, 2020, p.31.

<sup>134</sup> Zhuwei Wang, “Securing Energy Flows from Central Asia to China and the Relevance of the Energy Charter Treaty to China”, *Energy Charter Secretariat Knowledge Centre*, 2015, p.22.

The first non-fossil fuel project invested by China in Kazakhstan as an EPC contractor is Moinak Hydro power plant with a generation capacity of 150 MW for each turbine.<sup>135</sup>

Chinese solar manufacturing company JinkoSolar Holding declared that it will supply 50 MW of solar PV for the Burnoye 2 project in Kazakhstan financed by EBRD and another Chinese solar PV manufacturer Risen Energy acquired the necessary funding from EBRD and Green Climate Fund and Clean Technology Fund, to construct 40 MW and 50 MW solar PV plants in Kazakhstan in 2018 and 2019.<sup>136</sup>

To sum up, based on the information provided in this section, Chinese energy investments in Kazakhstan are mostly in the oil and gas sectors rather than renewable energy sector. While in Kazakhstan's oil and gas sectors Chinese companies are mostly investors, however in the renewable energy sector they mostly act as EPC contractors, supplying equipment for the already installed facilities. The main reason of this difference is mostly the concerns of Chinese authorities for the energy security of the country given the rising energy demand. Having a major influence on Kazakhstan's oil and gas production and building safer transportation routes for these supplies are the main components of the Chinese energy policy towards Kazakhstan.

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<sup>135</sup> Ibid.

<sup>136</sup> Komila Nabiyeva, "Win-Win or Win-Lose? China - Kazakhstan Energy Cooperation within The Belt and Road Initiative", *BlickWechsel*, April 2019, p.5.

## 3.2. Chinese Energy Investments in Turkmenistan

### 3.2.1. Turkmenistan Energy Sector

Turkmenistan ranks 6<sup>th</sup> in the world in terms of proven gas reserves with 265 trillion cubic feet and accounts 4% of the world's total proven gas reserves.<sup>137</sup> Most of the country's GDP is relied on gas exports with a share of 90% and gas exports constitute 43% of the budget revenue.<sup>138</sup> After the dissolution of the Soviet Union, the country had to learn how to manage this vast amount of gas reserves since the lack of infrastructure, legal framework, finance and technology for gas production. Therefore, initially the country focused on maintaining gas relations with countries through existing pipeline connections and long term bilateral agreements. Due to this fact, Turkmen gas has been monopolized by Russia since the only connection was with Russia and therefore the country's current main energy policy is mostly based on diversification of the gas export destinations in order to become less vulnerable and prevent political instability within the country.

In October 2006, the government has approved the “Programme for the Development of the Oil and Gas Industry of Turkmenistan until 2030” which reflects the intention to increase oil and gas production, production of refined products as well as export of feedstock and final products.<sup>139</sup>

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<sup>137</sup> Gas Reserves Turkmenistan, Access Date: 26.05.2020, Website URL: <https://www.worldometers.info/gas/turkmenistan-natural-gas/>.

<sup>138</sup> Pier Paolo Raimondi, “Central Asia Oil and Gas Industry - The External Powers' Energy Interests in Kazakhstan, Turkmenistan and Uzbekistan”, *Fondazione Eni Enrico Mattei Working Paper*, March 2019, p.43.

<sup>139</sup> “Voluntary National Review of Turkmenistan Empowering People and Ensuring Inclusiveness and Equality”, *Ashgabat Turkmen State Publishing Service*, 2019, p.8.

In the energy sector of Turkmenistan, the role of private companies are relatively limited in the country despite government policies and new legislation. The main obstacles are the challenging business climate due to heavy state presence in the economy, resulting from the requirement of state directed access to resources instead of market based access for conducting business and also lack of reliable data which brings risks to investors as well as for policy making officials.<sup>140</sup> In Turkmenistan two state owned companies are authorized for oil and gas production, the Turkmen national oil company Turkmenneft for oil and Turkmengaz for natural gas. Turkmengaz is responsible for the entire cycle of activities like exploration, extraction, transportation, processing and development of the exploration industry.<sup>141</sup> However, the oil and gas sectors have developed in a significant way that currently, for more than one quarter of the country's output is being controlled by two large foreign companies which are CNPC and Petronas.<sup>142</sup>

Since natural gas has the most important share in the country's energy mix and also gas trade covers most of the GDP of the country, in this section it will be mostly focused on natural gas production, trade and export routes.

### **3.2.1.1. Oil**

Comparing to the gas sector, the oil industry in Turkmenistan is small and the country ranks 44<sup>th</sup> in the world in terms of oil reserves and 33<sup>rd</sup> in world in terms

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<sup>140</sup> Hans Holzhaecker & Dana Skakova, "Turkmenistan Diagnostic", *European Bank for Reconstruction and Development*, May 2019, p.5.

<sup>141</sup> Rovshan Ibrahimov, "Energy Strategy Development of Azerbaijan, Turkmenistan and Uzbekistan: A Comparative Analysis", *Khazar Journal of Humanities and Social Sciences*, 21:2, 2018, p.70.

<sup>142</sup> Simon Pirani, "Central Asian Gas: Prospects for The 2020s", *Oxford Institute for Energy Studies*, December 2019, p.2.

of oil production with 266,427 b/d.<sup>143</sup> The country's major oil fields like Magtymguly at the Caspian Sea, Diyarbekir deposits and Garagol-Deniz West field is being developed by Malaysian oil company Petronas.<sup>144</sup> Petronas is the second oil producing foreign company in Turkmenistan after Anglo-Arab Company Dragon oil which has been developing the Cheleken offshore field since 1999.<sup>145</sup>

Turkmenistan lacks of necessary infrastructure to transport oil, that's the main reason why oil exports are low. The western part of the country contains the oil pipeline system and this system is mainly used to transport oil from the fields to Turkmenbashi oil refinery and to other export terminals on the Caspian Sea. Regarding petrochemicals production, after the realization of the Kiyanli complex in Balkan province in 2018, the country's petrochemicals capacity increased from 160,000 tons per year to 600,000 tons per year.<sup>146</sup>

### **3.2.1.2. Natural Gas**

As it is mentioned above Turkmenistan has large amount of natural gas reserves and the country's GDP mostly relies on gas export revenues. After gaining independence the country initially tried to develop the gas sector under state control, however after years the authorities allowed the private sector and foreign investors to be involved in the gas production process and gas production has started to gradually increase.

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<sup>143</sup> Turkmenistan Oil, Worldometers, Access Date: 26.05.2020, Website URL: <https://www.worldometers.info/oil/turkmenistan-oil/>.

<sup>144</sup> Rovshan Ibrahimov, "Energy Strategy Development of Azerbaijan, Turkmenistan and Uzbekistan: A Comparative Analysis", *Khazar Journal of Humanities and Social Sciences*, 21:2, 2018, p.71.

<sup>145</sup> "Oil and Gas Industry of Turkmenistan", *RPI*, 2009, p.31.

<sup>146</sup> Simon Pirani, "Central Asian Gas: Prospects for The 2020s", *Oxford Institute for Energy Studies*, December 2019, p.8.

Table 4 Turkmenistan Gas Production by Company and Destination 2009-2019<sup>147</sup>

Bcm	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 est
<b>Total production (sales gas)</b>	<b>33.3</b>	<b>40.1</b>	<b>56.3</b>	<b>59.0</b>	<b>59.0</b>	<b>63.5</b>	<b>65.9</b>	<b>63.2</b>	<b>58.7</b>	<b>61.5</b>	<b>62</b>
<b>Turkmengaz and other state-owned companies</b>											
Turkmengaz: to China, including from Galkynysh*	0	1.0	11.0	18.1	19.6	19.2	15.5	17.8	20.5	25.7	25.8
Turkmengaz: for other export routes and the domestic market**	33.2	35.5	40.2	34.1	32.7	33.4	36.2	30.4	23.0	19.5	18.9
Exports to Russia	11.8	10.7	11.2	10.9	10.9	11.0	3.1	0	0	0	0
Exports to Iran	7.0	7.0	10.0	9.0	5.0	6.0	7.0	7.0	0	0	0
Exports to Kazakhstan	0	0	0.3	0	0.3	1	1	1.3	1.5	1.5	1.5
For domestic market	14.4	17.8	18.7	14.2	16.5	15.4	25.1	22.1	21.5	18.0	17.4
<b>Private companies</b>											
CNPC: under PSA at Bagtyarlyk*	0.1	3.6	4.6	5.5	5.5	9.1	12.5	12.8	13.0	13.0	13.2
Petronas: offshore Caspian block no. 1			0.58	1.28	1.23	1.75	1.69	2.22	2.16	3.33	4.15
Private companies, as % of total	0.03	8.9	9.2	11.4	11.4	17.1	21.5	23.8	25.8	26.5	28
* Total Turkmen exports to China are those from Turkmengaz, plus those from CNPC at Bagtyarlyk. In this table, I have used total volumes exported, and CNPC volumes exported, as reported by CNPC. The sum is slightly larger than the volumes reported by the Chinese customs authorities, used in table A; in most years this difference was 1-2 bcm, but in 2018 it was substantial (more than 4 bcm larger)											
** This row includes all gas not exported to China. It also includes small volumes from Turkmenneft, the state-owned oil producer											

Sources: Total production: BP statistical review, author's estimate (2019),

CNPC, Petronas and Turkmengaz Export to China, Presentations at Turkmenistan Gas Congress, Avaza, May 2019.

According to Table 4, total gas production in Turkmenistan has been almost doubled from 2009 to 2019 and the roles of foreign companies (especially Chinese) and private companies have increased in recent years.

There are total of 22 gas fields in the country which are fully developed while the remaining 6 gas fields with potential of gas reserves.<sup>148</sup> Among the gas production fields, Douletabat, Saman Depe and Galkynysh are the most important ones. Douletabat is located near the border with Iran and the reserves

<sup>147</sup> Simon Pirani, "Central Asian Gas: Prospects for The 2020s", *Oxford Institute for Energy Studies*, December 2019, p.6.

<sup>148</sup> Dilyara Azizova, "Geopolitics of Energy in Eurasia – The Case of Turkmenistan", *Sabancı University Master Thesis*, June 2017, p.7.

of this field is estimated to be 1.2 trillion bcm.<sup>149</sup> Currently, this field is the main source of Central Asia Centre (CAC) pipeline in the northern direction. Saman Depe gas field belongs to the Bagtyyarlyk area which is considered to be the country's second largest natural gas field with an estimated 1.3 trillion bcm of proven reserves.<sup>150</sup> Bagtyyarlyk area has been developing under the PSA signed between Turkmenistan and CNPC in 2017 for a period of 30 years.<sup>151</sup> The most important gas field of Turkmenistan is formerly known as South Yolotan-Osman and renamed Galkynsh which is discovered in 2006 and is considered to be the second largest gas field in the world in terms of proven reserves. The Galkynsh field became the main export destination for China since the development of the field is controlled by Chinese company CNPC and the production is 30 bcm per year.<sup>152</sup>

Geologically, Turkmenistan is a landlocked country and does not have access to open seas which jeopardized its development of gas routes. Historically, Turkmenistan was supplying most of its gas to Soviet Republics via Central Asia Centre pipeline which was built in 1967. Today, the country's main policy regarding gas sector is to diversify the country's export routes in order to prevent being monopolized mainly by Russia. During the first years of independence, Russia benefited from being the only link of Turkmenistan towards other markets and brought a quota which limits exports of Turkmenistan to European

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<sup>149</sup> "Oil and Gas Industry of Turkmenistan", *RPI*, 2009, p.58.

<sup>150</sup> Dilyara Azizova, "Geopolitics of Energy in Eurasia – The Case of Turkmenistan", *Sabancı University Master Thesis*, June 2017, p.8.

<sup>151</sup> Rovshan Ibrahimov, "Energy and Power Politics in the Cases of Azerbaijan and Turkmenistan", *Perceptions*, 22:2, 2017, p.143.

<sup>152</sup> Simon Pirani, "Central Asian Gas: Prospects for The 2020s", *Oxford Institute for Energy Studies*, December 2019, p.6.

market to 11 bcm.<sup>153</sup> Russia terminated this quota in 1994 to force Turkmenistan to export gas only to Ukraine and former Soviet Republics. Also Russia has bought Turkmen gas at lower prices and resell it to European market with higher prices because it was cheaper than developing the remaining Russian fields. After the explosion on the Central Asia Centre pipeline and disagreement with Russia on price and contractual terms, Turkmenistan has turned to alternative routes such as Iran and China.

The first link with Iran was put in operation in 1997 with the Korpeje Kurt-Kui pipeline with a capacity of 8 billion bcm which is expandable to 14 bcm and the second link was put in operation in 2010 with the Douletabat-Sarabs-Hangeran pipeline with a capacity of 12 billion bcm.<sup>154</sup>

The gas connection with China was introduced in 2009 which was designed to pass through Turkmenistan, Uzbekistan, Kazakhstan and finally China. The capacity of the two lines is 30 bcm per year and the construction of the third line has been completed in 2014 with a capacity of 25 bcm per year.<sup>155</sup> Also there are ongoing talks between the governments of Turkmenistan and China to build the fourth line of the gas pipeline which would also pass from the territory of Tajikistan, however, the construction has been delayed.

Currently, Turkmenistan has 3 different potential routes for gas exports which are Russia, Iran and China. The capacity of the potential route for Turkmen gas's export to Russia is 50 bcm, towards Iran the capacity is 20 bcm and finally to China the gas export capacity is 55 bcm. Recently, China has become the major

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<sup>153</sup> Rovshan Ibrahimov, "Energy and Power Politics in the Cases of Azerbaijan and Turkmenistan", *Perceptions*, 22:2, 2017, p.144.

<sup>154</sup> Ilgar Gurbanov, "Caspian Convention and Perspective of Turkmenistan's Gas Export to Europe", *Caucasus International*, 8:2, Winter 2018, p.160.

<sup>155</sup> Simon Pirani, "Central Asian Gas: Prospects for The 2020s", *Oxford Institute for Energy Studies*, December 2019, p.10.

gas trade partner for Turkmenistan. In 2017, Turkmenistan has exported 33.6 bcm of natural gas in total, 31.7 of which was exported to China.<sup>156</sup>

There are other potential routes for gas exports which are still at the discussion stage like the Turkmenistan-Afghanistan-Pakistan-India (TAPI) Gas Pipeline Project and the Trans-Caspian Gas Pipeline Project. The TAPI Gas Pipeline Project is designed to have 33 bcm of capacity per year which would transport the gas from Galkynysh field to the countries on the route. However the project has faced two risks which are the security problem stemming from the Afghan unstable region and the finance problem since the pipeline is designed to be 1814 km of length.<sup>157</sup> Although these risks have caused the delay of the construction of the Project, Turkmenistan authorities have announced that they reached an agreement with some tribes in Afghanistan and the financing issue was solved with the involvement of Saudi Development Fund.<sup>158</sup>

The Trans-Caspian Pipeline Project envisaged to run under the Caspian Sea to reach Azerbaijan and then connect to the Baku-Tbilisi-Erzurum Gas Pipeline, or more possibly connect to Trans Anatolian (TANAP) Gas Pipeline and Trans Adriatic (TAP) Gas Pipeline in order to transport Turkmenistan gas to first Turkey and finally to Europe.<sup>159</sup> However the long standing disputes on the legal status of the Caspian Sea have been hindering the implementation of the project.

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<sup>156</sup> Pier Paolo Raimondi, “Central Asia Oil and Gas Industry - The External Powers’ Energy Interests in Kazakhstan, Turkmenistan and Uzbekistan”, *Fondazione Eni Enrico Mattei Working Paper*, March 2019, p.45.

<sup>157</sup> Hans Holzhaecker & Dana Skakova, “Turkmenistan Diagnostic”, *European Bank for Reconstruction and Development*, May 2019, p.11.

<sup>158</sup> Pier Paolo Raimondi, “Central Asia Oil and Gas Industry - The External Powers’ Energy Interests in Kazakhstan, Turkmenistan and Uzbekistan”, *Fondazione Eni Enrico Mattei Working Paper*, March 2019, p.45.

<sup>159</sup> Ilgar Gurbanov, “Caspian Convention and Perspective of Turkmenistan’s Gas Export to Europe”, *Caucasus International*, 8:2, Winter 2018, p.162.

Especially Russia has opposed to the project as a littoral state by claiming the pipeline would damage the environment of the Caspian Sea, since at the end the project it was aimed to transport Turkmen gas to the European market in which Russia has a dominant position in terms of gas trade. However, as it was mentioned in the first chapter the Convention on the Legal Status of the Caspian Sea has been signed in 2018 and this development may pave the way for the realization of the Trans-Caspian Gas Pipeline Project.

Beside the already implemented gas pipeline projects and the gas pipeline projects which are still at the development stage, Turkmenistan has a policy to sell the gas at the border, in order to avoid the financial risks of the construction of transnational pipelines.

In addition to export natural gas as a raw material, Turkmenistan also generates environment friendly electricity from natural gas that is not only used to supply the domestic needs but also is exported to neighboring countries. The country has doubled its electricity production in the last decade to 23 TWh, moreover by 2020, 14 gas turbine power plants are planned to be in operation which will increase the electricity production to 27.4 TWh.<sup>160</sup> Currently, the main export destination for electricity are Iran and Afghanistan which can be expanded to Turkey and Armenia and other countries in the region.

### **3.2.1.3. Renewable Energy**

The electricity market in Turkmenistan is controlled by the state owned company Turkmenenergo. As specified in the previous section, in 2017, total electricity generation of Turkmenistan was about 23 TWh and almost all production came from natural gas since it the major resource of the country. On the other hand, renewable energy investments in the country are not promising comparing to

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<sup>160</sup> Mykytchuk N. & Hanko V., “Energy Factor in China – Turkmenistan Relations”, *Epistemological Studies in Philosophy, Social and Political Sciences*, 2018, p.99.

other Central Asian countries, since in Turkmenistan there is a lack of legal framework regarding the renewable energy sector. The share of renewable energy in the overall installed capacity is 0.18% which is the lowest percentage in the region.<sup>161</sup>

The country has adopted the National Strategy on Climate Change in 2012 which represents the promotion the use of renewable energy and low carbon resources in its energy consumption and also the government established the National Climate Change Fund to finance the renewable energy projects.<sup>162</sup>

The only hydropower project reported in Turkmenistan is the Hindikush Hydropower Station on Mugrap River with a capacity of 1.2 MW, built in 1913.<sup>163</sup> Regarding solar power, Turkmenistan has a remarkable potential for solar power especially in the Kuli, Gasan and Asghabat where yearly sunshine duration ranges from 2,768 to 3,150 hours.<sup>164</sup> The Karakum desert covers almost 80% of the land of the country which creates a great potential for solar farming in the country due to availability of land.

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<sup>161</sup> “Renewable Energy Snapshot: Turkmenistan”, *UNDP*, 2013, p.1.

<sup>162</sup> Elena Shadrina, “Renewable Energy in Central Asian Economies Role in Reducing Regional Energy Insecurity”, *Asian Development Bank Institute*, August 2019, p.19.

<sup>163</sup> Bahtiyor Eshchanov & Alina Abylkasymova & Farkhod Aminjonov & Daniyar Moldokanov & Indra Overland & Roman Vakulchuk, “Hydropower Potential of The Central Asian Countries”, *Central Asia Regional Data Review 19*, 2019, p.3.

<sup>164</sup> Elena Shadrina, “Renewable Energy in Central Asian Economies Role in Reducing Regional Energy Insecurity”, *Asian Development Bank Institute*, August 2019, p.19.

Table 5 Installed Solar Power Projects in Turkmenistan<sup>165</sup>

Name/Project description	Location	Installed capacity	Year	Funding
Solar desalination plants for the desalination of salt water in wind-solar complexes for transhumance	Garagum desert: Cherkezli and Ovez-Shyh small lands	Information not available	During the Soviet period.	County budget (based on information from the Scientific institute "Gun" (Sun))
The creation of a health complex on the basis of energy sources in the Caspian area. Projects have been started to create a "solar village" in which all life-support systems, including waste disposal systems, will be operated with the help of solar power plants.		Information not available	Information not available	The United Nations Educational, Scientific and Cultural Organization (UNESCO) tender
A wind and energy unit for a local secondary school	Balkan velayat (region), Gyzylsu island in the Caspian Sea	5 kW	During the Soviet period	County budget
A grant to investigate "the possibility of producing silicon from the Karakum sand for photovoltaic converters" was obtained by the scientific institute, "Gun". This project produced the first sample of silicon from quartz sand in the Karakum desert using solar energy.		Information not available	Information not available	Islamic Development Bank

Table 5 shows the installed solar energy projects in Turkmenistan.

Also, wind energy potential of the country is relatively high, especially the Caspian Sea coast in the west part of the country is known for strong wind power potential.

### 3.2.2. China-Turkmenistan Energy Relations

Having vast amount of natural resources, Turkmenistan has attracted the investments of China which wants to ensure its energy supply security to meet its growing energy demand. Turkmenistan has adequate resources to supply China's

<sup>165</sup> Bahtiyor Eshchanov & Alina Abylkasymova & Farkhod Aminjonov & Daniyar Moldokanov & Indra Overland & Roman Vakulchuk, "Solar Power Potential of The Central Asian Countries", *Central Asia Regional Data Review 18*, 2019, p.4.

demand, however the problem is in developing these gas fields. Turkmenistan lacks governance, technology, skilled labor and capital therefore, the Chinese participation in Turkmenistan's oil and gas sectors has been increasing in recent years.

The energy cooperation between Turkmenistan and China mainly has begun with the visit of President Niyazov to Beijing in 2006, during which the "General Agreement on Cooperation of the Chinese National Oil and Gas Corporation (CNPC) with the Ministry of Oil and Gas Industry of Turkmenistan" was signed.<sup>166</sup> This agreement includes the construction of the Turkmenistan-China gas pipeline which is considered to be one of the two mega projects of China in the region while the other one is the Kazakhstan-China Crude Oil pipeline project. Turkmenistan-China gas pipeline project was initially designed as two lines (Line A and B) with a capacity of 30 bcm per year in 2009, and in 2014 the third line (Line C) was completed with a capacity of 25 bcm per year. The fourth line (Line D) is also planned to be constructed with a different route from other lines crossing Uzbekistan, Tajikistan and Kazakhstan. The project was originally planned to start in 2015, however in 2017 the project was frozen by the decision of CNPC.<sup>167</sup>

Chinese companies are also operating in the natural gas sector at the field development and gas production stages. Currently, 37 enterprises with Chinese capital shares are operating in Turkmenistan which have been implemented 57 investment projects worth up to 4.163 billion USD.<sup>168</sup>

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<sup>166</sup> Mykytchuk N. & Hanko V., "Energy Factor in China – Turkmenistan Relations", *Epistemological Studies in Philosophy, Social and Political Sciences*, 2018, p.99.

<sup>167</sup> Simon Pirani, "Central Asian Gas: Prospects for The 2020s", *Oxford Institute for Energy Studies*, December 2019, p.11.

<sup>168</sup> Christina Y. Lin, "The Caspian Sea: China's Silk Road Strategy Converges with Damascus", *China Brief*, 17:2010, p.9.

In 2007, Turkmengaz and CNPC signed a PSA for the exploration, development and production of gas in the Bagtyyarlík area<sup>169</sup>, which is one of the major gas field areas in the country including the Samandepé field. With this agreement, CNPC became the second foreign company to receive the right to carry out gas extraction activities in an onshore field.

Another Chinese involvement in Turkmenistan's gas production is in the number one gas field of the country- Galkynysh field which has 21.2 trillion bcm of gas reserves. In 2009, an agreement was signed between the government of Turkmenistan and CNPC and also with South Korean Hyundai Engineering and Petrofac from United Arab Emirates to develop the Galkynysh gas field.<sup>170</sup>

Another agreement was signed in 2013 during the visit of Xi Jinping to Turkmenistan regarding the construction of a new gas processing complex by CNPC with a capacity of 30 bcm per year at Galkynysh.<sup>171</sup>

Along with the investments in gas transportation and gas production, Chinese companies also provide engineering and technical services in oil fields as contractors. Sinopec is engaged in the repair and maintenance of wells in Shatlyk, Douletabat and Goturdepe oil and gas fields.<sup>172</sup>

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<sup>169</sup> Pier Paolo Raimondi, "Central Asia Oil and Gas Industry - The External Powers' Energy Interests in Kazakhstan, Turkmenistan and Uzbekistan", *Fondazione Eni Enrico Mattei Working Paper*, March 2019, p.50.

<sup>170</sup> Rovshan Ibrahimov, "Energy Strategy Development of Azerbaijan, Turkmenistan and Uzbekistan: A Comparative Analysis", *Khazar Journal of Humanities and Social Sciences*, 21:2, 2018, p.72.

<sup>171</sup> Mykytchuk N. & Hanko V., "Energy Factor in China – Turkmenistan Relations", *Epistemological Studies in Philosophy, Social and Political Sciences*, 2018, p.100.

<sup>172</sup> Mykytchuk N. & Hanko V., "Energy Factor in China – Turkmenistan Relations", *Epistemological Studies in Philosophy, Social and Political Sciences*, 2018, p.101.

Turkmenistan, like Kazakhstan is one of the main pillars of the New Silk Road Initiative of China which will enable China to gain access to Caspian resources and also to build a link with the European markets. Moreover, Turkmenistan is one of the main suppliers of gas to China with a secure transportation system which was built by China itself. Likewise, for Turkmenistan, being close trade partners with China enables the country to diversify its energy exports to diminish the Russian monopoly over the country. Besides, China is the main provider of finance, technology and know-how for the Turkmen oil and gas industry which constitutes most of the country's GDP.

## CHAPTER 4

### CHINA-AZERBAIJAN ENERGY RELATIONS

Despite being the smallest country among the countries coasting the Caspian Sea Azerbaijan, ranks second in terms of total offshore oil reserves by accounting for more than 30% of total reserves.<sup>173</sup> According to BP statistical review of world energy the country has 7 billion barrels of proven oil reserves accounting for 0.4% of the world total oil reserves<sup>174</sup> and has 2.1 trillion cubic meters natural gas reserves accounting 1.1% of the world total natural gas reserves<sup>175</sup> and most of these reserves are exploited from the Caspian offshore fields.

As a post-Soviet country Azerbaijan's economy was mostly based on agriculture, oil production and refining to supply the Soviet countries. After gaining independence like other Soviet countries, Azerbaijan experienced an economic turmoil and the leaders have tried to overcome of this turmoil by attempts to increase the revenues from hydrocarbons. Heydar Aliyev is the most important leader of the country in terms of this strategy, he used the hydrocarbon resources to restore both the foreign policy and economy of Azerbaijan.<sup>176</sup> In the end, Azerbaijan became the first former Soviet country to export its natural resources to European markets with an alternative route to the Russian system.

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<sup>173</sup> Ramil Gasimov, "Challenges to the Legal Framework Governing Liability and Compensation for Oil Production in the Caspian Sea: The Case of the Republic of Azerbaijan", *World Maritime University Dissertations*, 2018, p.16.

<sup>174</sup> "BP Statistical Review of World Energy", 68th Edition, 2019, p.14.

<sup>175</sup> "BP Statistical Review of World Energy", 68th Edition, 2019, p.30.

<sup>176</sup> Sabina Strimbovschi, "The Influence of Energy Resources in Developing "Pragmatic" Relations between Azerbaijan and the West", *CES Working Papers*, October 2016, p.506.

Having alternatives other than Russia has been crucial for Azerbaijan, since Russia still tries to maintain its monopoly over the country by supporting Armenia in the Nagorno-Karabakh conflict and also by insistently refusing any solutions regarding the problematic issue about the legal status of the Caspian Sea which jeopardizes the fully exploitation of the oil and gas reserves in the region. In this context, during the war between Azerbaijan and Armenia over Nagorno-Karabakh region between 1988 and 1994, Russia's support of the Armenian side has led Azerbaijan to follow a more pro-western foreign policy, so that major contracts regarding the oil and gas deals were concluded with major western international companies led by British Petroleum.<sup>177</sup> In addition, the Russian policy to pressure littoral states of the Caspian Sea by rejecting their activities to develop the offshore fields since the legal status of the Caspian Sea has not been resolved. Russia and Iran claim that Caspian Sea is an inland lake and thus should be controlled by the littoral states jointly, while the other littoral states Azerbaijan, Kazakhstan and Turkmenistan claim that Caspian Sea is literally a sea and therefore should be divided into national sectors so that each littoral state would have their own sovereign area. As a result of this contradictions, in order to start to develop its offshore fields, Azerbaijan needs the support of the Western countries and also has to cooperate with them since they could provide both knowledge and technology and also finance.

#### **4.1. Azerbaijan Energy Sector**

Energy has been the most important element of the foreign trade of Azerbaijan since Soviet times until today, so that the export of hydrocarbons accounts 93% of total exports of the country.<sup>178</sup> This high share of hydrocarbons in the

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<sup>177</sup> Kerem Öge, "Geopolitics and Revenue Transparency in Turkmenistan and Azerbaijan", *Eurasian Geography and Economics*, June 2015, p.101.

<sup>178</sup> Kerem Öge, "Geopolitics and Revenue Transparency in Turkmenistan and Azerbaijan", *Eurasian Geography and Economics*, June 2015, p.102.

country's foreign trade balance also shows that the strategies regarding oil and gas also affect the foreign policy dynamics of Azerbaijan.

The oil strategy of the country adopted in early 1990s after independence by Heydar Aliyev (1993-2004) included:

1. Attracting foreign investments, 2. Turning the country into one of the major oil exporters in the region, 3. Turning the country into a strategically important natural gas exporter for the neighboring countries as well as for Europe in the longer run, 4. Turning the country into an important transit country for transportation of mainly Central Asian hydrocarbons in the longer term when domestic production of hydrocarbons starts to decrease.<sup>179</sup>

With this strategy, the country aimed to become a self-sufficient country for energy by increasing the production of hydrocarbons and also become a strategically important country in the world energy trade by benefiting from not only its oil and gas reserves but also its geostrategic location. So far, Azerbaijan has signed over 30 agreements with foreign companies for the development of its oil and gas fields<sup>180</sup> which created positive outcomes for the country's economy.

#### **4.1.1. Oil**

Azerbaijan produced 800.000 barrels of crude oil per day in 2018<sup>181</sup> and the significant increase in the country's oil production has started with the agreement signed with western countries which is also called in the literature as the "Contract of the Century". The second President of Azerbaijan after independence Heydar Aliyev signed the agreement in 1994 with 11 foreign

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<sup>179</sup> Gulmira Rzayeva, "The Outlook for Azerbaijani Gas Supplies to Europe: Challenges and Perspectives", *The Oxford Institute for Energy Studies*, June 2015, p.9.

<sup>180</sup> Sabina Strimbovski, "The Influence of Energy Resources in Developing "Pragmatic" Relations between Azerbaijan and the West", *CES Working Papers*, October 2016, p.508.

<sup>181</sup> Ramil Gasimov, "Challenges to the Legal Framework Governing Liability and Compensation for Oil Production in the Caspian Sea: The Case of the Republic of Azerbaijan", *World Maritime University Dissertations*, 2018, p.17.

companies from 7 countries. The agreement is valid for 30 years and it includes the development of Azeri-Chirag-Guneshli offshore fields located in the Azerbaijan sector of the Caspian Sea.<sup>182</sup> A new company was established with the signing of the Agreement which is called Azerbaijan International Operating Company (AIOC) and it is responsible for the development of the so called fields. Today, AIOC consists of SOCAR (25%), BP (30.3%), Statoil – which is now under the name of “Equinor” (7.2%), Inpex (9.3%), TPAO (5.7%), ExxonMobil (6.7%), ITOCHU (3.6%), Chevron (9.5%) and ONGC Videsh Limited (2.3%).<sup>183</sup> According to the contract Azerbaijan will benefit from the technology of these foreign companies which will enable the country to fully exploit its rich reserves and the two sides will share the profit of the oil export. Starting from 2008 the total net profit from oil export has started to be shared as 80% to Azerbaijan and 20% to international oil and gas companies after the recovery of capital and operating costs while international oil and gas companies also pay taxes on their share of profit.<sup>184</sup> The oil production from these fields is currently 550.000 barrels per day<sup>185</sup> which is exported to world markets.

The main oil transport routes of Azerbaijan have been Baku-Novorossiysk Oil pipeline which transported oil to Russia from Azerbaijan and Baku-Supsa oil pipeline which transported oil to Georgia. After these destinations oil was transported to western markets via the Black Sea by tankers and this has

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<sup>182</sup> Gulmira Rzayeva, “The Outlook for Azerbaijani Gas Supplies to Europe: Challenges and Perspectives”, *The Oxford Institute for Energy Studies*, June 2015, p.9.

<sup>183</sup> BP Official Website, Access Date: 05.06.2020, Website URL:  
[https://www.bp.com/en\\_az/azerbaijan/home/who-we-are/operationsprojects/acg2/the-contract-of-the-century---a-national-strategy-for-success.html](https://www.bp.com/en_az/azerbaijan/home/who-we-are/operationsprojects/acg2/the-contract-of-the-century---a-national-strategy-for-success.html).

<sup>184</sup> Gulmira Rzayeva, “The Outlook for Azerbaijani Gas Supplies to Europe: Challenges and Perspectives”, *The Oxford Institute for Energy Studies*, June 2015, p.9.

<sup>185</sup> BP Official Website, Access Date: 05.06.2020, Website URL:  
[https://www.bp.com/en\\_az/azerbaijan/home/who-we-are/operationsprojects/acg2/the-contract-of-the-century---a-national-strategy-for-success.html](https://www.bp.com/en_az/azerbaijan/home/who-we-are/operationsprojects/acg2/the-contract-of-the-century---a-national-strategy-for-success.html).

increased the burden of the Turkish Straits which are already congested. In addition, backed by western companies the capacity of the Baku-Supsa Oil Pipeline is limited to 5.5-6 million tons of oil per year.<sup>186</sup> Therefore, an urgent need occurred to build an alternative route other than the Black Sea route. In this regard, Baku-Tbilisi-Ceyhan oil pipeline was introduced to transport oil from Azeri-Chirag-Guneshli fields and condensate from Shah Deniz following the route of Azerbaijan-Georgia and Turkey. The construction of the pipeline was completed in 2005 and it is operated by BP on behalf of the BTC Co shareholders<sup>187</sup> on the Azeri and Georgian side and by BOTAŞ Petroleum Pipeline Company on the Turkish side.

The Baku-Tbilisi-Ceyhan (BTC) Oil Pipeline is also an attractive transport route for Central Asian countries especially for Turkmenistan and Kazakhstan. Turkmenistan crude oil has started to be transported via this pipeline<sup>188</sup> and moreover, the agreements were signed with the operators of Kazakhstan's giant oil fields Kashagan and Tengiz in order to deliver crude oil to the BTC system.<sup>189</sup>

The agreement to develop the country's main oil field was extended in 2017 to 2049 as Azerbaijan is still considered as a strong oil producer. However, the

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<sup>186</sup> Sabina Strimbovschi, "The Influence of Energy Resources in Developing "Pragmatic" Relations between Azerbaijan and the West", *CES Working Papers*, October 2016, p.508.

<sup>187</sup> BTC Co. shareholders are: BP (30.1%); AzBTC (25%); MOL (8.9%); Equinor (8.7%); TPAO (6.5%); Eni (5%); Total (5%), ITOCHU (3.4%); INPEX (2.5%), ExxonMobil (2.5%) and ONGC (BTC) Limited (2.3). BP Azerbaijan Official Website, Access Date: 05.06.2020, Website URL: [https://www.bp.com/en\\_az/azerbaijan/home/who-we-are/operationsprojects/pipelines/btc.html](https://www.bp.com/en_az/azerbaijan/home/who-we-are/operationsprojects/pipelines/btc.html).

<sup>188</sup> Sabina Strimbovschi, "The Influence of Energy Resources in Developing "Pragmatic" Relations between Azerbaijan and the West", *CES Working Papers*, October 2016, p.509.

<sup>189</sup> Tracey C. German, "Corridor of Power: The Caucasus and Energy Security", *Caucasian Review of International Affairs*, Spring 2008, p.4.

country's oil production has started to decrease in recent years since the fields are near to reach their plateau levels.

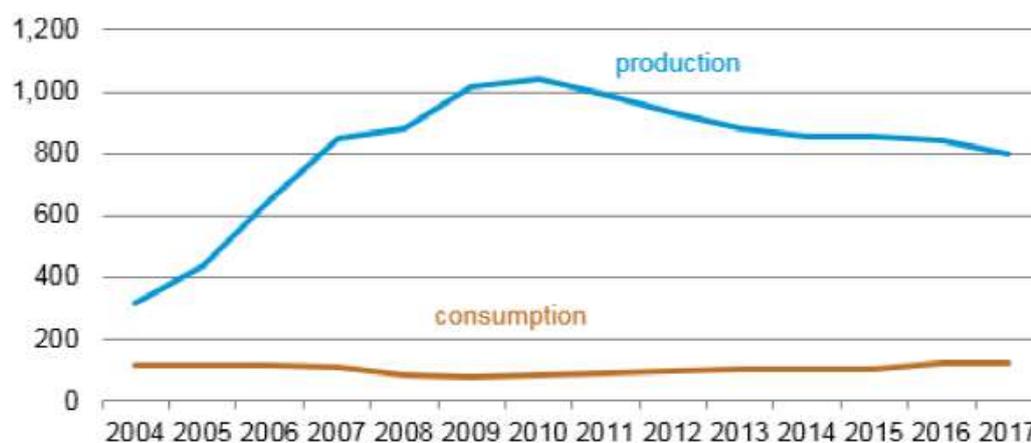


Figure 6 Azerbaijan Petroleum and Other Liquids Production and Consumption (thousand barrels per day)<sup>190</sup>

Source: EIA

After the exploitation of oil fields and the export of these resources to world markets have been achieved, Azerbaijan has started to look for increasing its revenues through the export of finished petroleum products since the oil production is already decreasing (Figure 6). Therefore, this strategy brings forward the need to construct highly developed petrochemical complexes. The biggest oil refinery of Azerbaijan is Azerneftyanajag refinery which was renamed in 2004 as Heydar Aliyev Baku Oil Refinery and the refinery is adequate to supply the domestic market, also 45% of the export of country's petroleum products are covered from this facility.<sup>191</sup> In addition, SOCAR implements an Oil and Gas Processing Complex Project which will be located near Sangachal Terminal (hub of the main oil and gas transit pipelines) and the

<sup>190</sup> "Country Analysis Executive Summary: Azerbaijan", *U.S. Energy Information Administration*, January 2019, p.2.

<sup>191</sup> Rovshan Ibrahimov, "Energy Strategy Development of Azerbaijan, Turkmenistan and Uzbekistan: A Comparative Analysis", *Khazar Journal of Humanities and Social Sciences*, 2018, p.75.

first phase of the project is expected to be operational in 2023.<sup>192</sup> The project includes the construction of gas processing plant, oil refinery and petrochemical plant.

Moreover, Azerbaijan has substantial refining and petrochemical industry investments in other countries as well. The state owned company SOCAR jointly with Turkish companies Turcas and Injaz alliance has taken over 51% of Turkey's largest petrochemicals company Petkim Holding and also SOCAR has completed the construction of Star Oil refinery in Turkey with a capacity of 10 million tons of oil per year.<sup>193</sup>

#### **4.1.2. Natural Gas**

Azerbaijan has mainly 3 sources for natural gas; Shah Deniz Field which is the country's largest gas field, associated gas from Azeri-Chirag-Guneshli basin the Shallow Water Guneshli field and other smaller fields. The main gas reserves of Azerbaijan are in Shah Deniz area, located in the Caspian basin. In 1996 the agreement to develop Shah Deniz field was signed and the Shah Deniz Exploration and Production Operating Company was established and the shareholders of the company are shown in Figure 7.

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<sup>192</sup> Ibid.

<sup>193</sup> Rovshan Ibrahimov, "Energy Strategy Development of Azerbaijan, Turkmenistan and Uzbekistan: A Comparative Analysis", *Khazar Journal of Humanities and Social Sciences*, 2018, p.77.

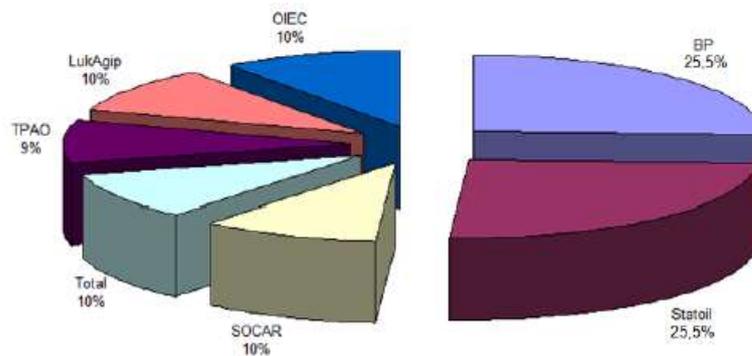


Figure 7 Shah Deniz Production Sharing Agreement Shareholders (%)<sup>194</sup>

Source: BP

The agreement for the exploration, development and production of the field will be in force for 30 years which can be extended for another 5 years. In 2000 the second stage of Shah Deniz was drilled and together with the first stage this field covers most of the natural gas production of the country. However recent reports have shown that despite gas is not an unlimited source, the reserves of Shah Deniz 1 are already decreasing. According to BP forecast, by 2025 Shah Deniz 1 output will fall to 6.7 bcm/y and Shah Deniz 2 output will reach the plateau about 16.3 bcm/y.<sup>195</sup>

The discovered natural gas fields other than the Caspian basin are Umid with an estimated gas reserves of 200-300 billion cubic meters, Babak with 600 million cubic meters, Absheron with 350 billion cubic meters and the agreements were also signed to develop these fields with energy companies.<sup>196</sup> However, as these fields

<sup>194</sup> Gulmira Rzayeva, “The Outlook for Azerbaijani Gas Supplies to Europe: Challenges and Perspectives”, *The Oxford Institute for Energy Studies*, June 2015, p.13.

<sup>195</sup> Simon Pirani, “Azerbaijan’s Gas Supply Squeeze and the Consequences for the Southern Corridor”, *The Oxford Institute for Energy Studies*, July 2016, p.8.

<sup>196</sup> Rovshan Ibrahimov, “Energy Strategy Development of Azerbaijan, Turkmenistan and Uzbekistan: A Comparative Analysis”, *Khazar Journal of Humanities and Social Sciences*, 2018, p.69.

do not have significant reserves as the Shah Deniz field, it is still estimated that gas production will not increase substantially.

The total amount of production from the first stage of Shah Deniz field until 2017 was 78.4 billion cubic meters of gas and of which 43.8 billion cubic meters gas was exported to Turkey and 5.9 billion cubic meters was exported to Georgia<sup>197</sup> via the South Caucasus Pipeline gas pipeline (also named as Baku-Tbilisi-Erzurum gas pipeline). The construction of the pipeline was completed in 2006 and has been operated by South Caucasus Pipeline Company which is led by BP and SOCAR. The export capacity of the pipeline is 6.6 bcm/y to Turkey (BOTAS), 0.8 bcm/y to Georgia (Georgian International Oil Corporation) and 1.5 bcm/y for Socar<sup>198</sup> to be used in the domestic market of Azerbaijan.

Considering the transportation of gas produced from the second stage of the Shah Deniz field, capacity of the South Caucasus Pipeline was expanded and two new projects were introduced which are Trans Anatolian Pipeline (TANAP) and Trans Adriatic Pipeline (TAP). These projects aims to carry Azerbaijani gas first to Turkish and finally to European markets and together they constitute the Southern Gas Corridor.

Trans Anatolian Pipeline starts from the Turkish-Georgian border and extends to Turkish-Greece border and aims to transport 16 bcm/y of gas at the initial phase of which 6 bcm/y will supply Turkey and 10 bcm/y will supply Europe.<sup>199</sup> The construction of the pipeline was completed in 2018 and gas supply to Turkey has begun. TAP will be connected with TANAP and will pass the territories of Greece,

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<sup>197</sup> Ibid.

<sup>198</sup> Gulmira Rzayeva, "The Outlook for Azerbaijani Gas Supplies to Europe: Challenges and Perspectives", *The Oxford Institute for Energy Studies*, June 2015, p.13.

<sup>199</sup> Gina Cohen, "Natural Gas Import And Export Routes In South-East Europe And Turkey", *Institute of Energy for South East Europe*, July 2019, p.14.

Albania and finally Italy.<sup>200</sup> The project is expected to be completed in 2020. Moreover, Croatia, Montenegro, Albania and Bosnia Herzegovina have signed an agreement to the construction of the Ionian Adriatic Pipeline which will be connected to TAP and would provide the transportation of Azerbaijani gas also to these countries.

Azerbaijan has been considered as a major gas supplier source to European markets, however as was discussed above, Shah Deniz 2 field is expected to reach the plateau level before the initial estimations. Therefore, The Oxford Energy Institute report claims that this assumption should be reassessed since Azerbaijani gas will not be adequate to meet the expectations from the Southern Gas Corridor.<sup>201</sup> Therefore, the efforts to include gas from Turkmenistan to the Southern Gas Corridor system should be accelerated.

On the other hand, gas exports to Russia has been decreasing and finally stopped in 2015.<sup>202</sup> Also Azerbaijan has a swap contract with Iran which was signed to supply Nakhchivan Autonomous Republic with a capacity of 1 bcm/y.<sup>203</sup> The reason behind this is that there is no direct connection with the territory of Azerbaijan and Nakchivan because of the Armenian occupation of the Azerbaijani territory. In addition to gas exports to Georgia via South Caucasus Pipeline from the Shah Deniz field, Azerbaijan also exports gas from other fields to Georgia via

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<sup>200</sup> Rovshan Ibrahimov, "Energy and Power Politics in the Cases of Azerbaijan and Turkmenistan", *Perceptions*, 2017, p.139.

<sup>201</sup> Simon Pirani, "Azerbaijan's Gas Supply Squeeze and the Consequences for the Southern Corridor", *The Oxford Institute for Energy Studies*, July 2016, p.8.

<sup>202</sup> Simon Pirani, "Azerbaijan's Gas Supply Squeeze and the Consequences for the Southern Corridor", *The Oxford Institute for Energy Studies*, July 2016, p.6.

<sup>203</sup> Gulmira Rzayeva, "The Outlook for Azerbaijani Gas Supplies to Europe: Challenges and Perspectives", *The Oxford Institute for Energy Studies*, June 2015, p.18.

Gazimagomed-Gazakh-Saguramo pipeline which was built during the Soviet times with a capacity of 3 bcm/y.<sup>204</sup>

Regarding gas storage capacity, the country has no substantial gas storage capacity. Currently, Azerbaijan has 2 gas storage facilities which are Garadağ and Kalmaz with only a total capacity of 3 bcm per year.<sup>205</sup>

#### 4.1.3. Renewable Energy

The use of renewable energy resources in electricity generation of Azerbaijan is low compared the potential of the country. As of now, the share of natural gas in electricity generation is 94% while the remaining share of 6% belongs mostly to Hydropower Plants.<sup>206</sup>

Table 6 Electricity Generation by Source (GWh)<sup>207</sup>

Source	2010	2011	2012	2013	2014	2015	2016	2017
Thermal	15262.7	17618.0	21167.1	21729.6	23249.3	22859.9	22761.0	22344.9
Hydro	3446.3	2675.8	1821.0	1489.1	1299.7	1637.5	1959.3	1746.4
Wind	0.5	-	-	0.8	2.3	4.6	22.8	22.1
Solar PV	-	-	-	0.8	2.9	4.6	35.3	37.2
Biomass	-	-	-	134.1	173.5	181.8	174.5	170.3
Total	18709.5	20293.8	22988.1	23354.4	24727.7	24688.4	24952.9	24320.9

Source: State Statistical Committee of Azerbaijan (2018)

<sup>204</sup> Gulmira Rzayeva, “The Outlook for Azerbaijani Gas Supplies to Europe: Challenges and Perspectives”, *The Oxford Institute for Energy Studies*, June 2015, p.17.

<sup>205</sup> Omid Shokri Kalehsar, “Iran-Azerbaijan Energy Relations in the Post-Sanctions Era”, *Middle East Policy*, 2016, p.139.

<sup>206</sup> “National Sustainable Energy Action Plan of Azerbaijan”, 2018, p.45.

<sup>207</sup> “Renewables Readiness Assessment Republic of Azerbaijan”, *International Renewable Energy Agency*, December 2019, p.7.

The State Agency on Alternative and Renewable Energy Sources of Azerbaijan was established in 2013<sup>208</sup> to improve the share of renewable energy resources in the country's energy mix. The State Agency developed a program on renewable energy sector which is called "The Azerbaijan 2020: Vision of the Future Development" to specify targets and build a development concept for the renewable energy sector in the country. This program envisages to increase the share of renewable energy in electricity generation to 20% and also to increase energy efficiency to 20% by 2020.<sup>209</sup> In other words, the program set a target of generating 420 MW electricity from renewable energy resources which includes 350 MW of wind, 50 MW of solar and 20 MW of bioenergy.<sup>210</sup> Indeed these targets are considered very high, however the attempts of the government towards the improvement of the renewable sector is highly important given that oil and gas are not sustainable resources.

The country is estimated to have in total 3000 MW wind capacity per year both onshore and offshore.<sup>211</sup> Currently two wind turbines are operated by Caspian Technology at the Caspian coast with a capacity of 1.75 MW and also there are plans to install a 40 MW wind park by German companies and finally on the offshore side first wind turbines will be installed by the Caspian Technology

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<sup>208</sup> "National Sustainable Energy Action Plan of Azerbaijan", 2018, p.45.

<sup>209</sup> Ulviyye Aydın, "Energy Insecurity and Renewable Energy Sources: Prospects and Challenges for Azerbaijan", *ADB Institute*, August 2019, p.7.

<sup>210</sup> "Renewables Readiness Assessment Republic of Azerbaijan", *International Renewable Energy Agency*, December 2019, p.10.

<sup>211</sup> "Renewables Readiness Assessment Republic of Azerbaijan", *International Renewable Energy Agency*, December 2019, p.18.

Company in joint venture with Energy Competence Center GmbH with a capacity of 1.7 MW.<sup>212</sup>

When it comes to solar energy there are currently five solar power plants with a capacity of 2.8 MW each in Samukh, Sumgait Pirallahy, Surakhany and Karadakh regions and the sixth plant was established in Nakhchivan with a capacity of 20 MW.<sup>213</sup>

Among renewable energy resources, hydropower has the most potential in Azerbaijan however, hydropower plants installed in the country are not functioning with full capacity. The capacity of hydropower plants is estimated around 1200 MW and approximately 1100 rivers in the country are able to generate 40 MW electricity per year.<sup>214</sup> Along with the current small hydropower plants installed in the country, Azerbaijan needs to focus on this significant potential and start to benefit more from hydropower in its electricity generation.

#### **4.2. China - Azerbaijan Energy Relations**

As can be seen from the previous section, unlike the energy sectors in Kazakhstan and Turkmenistan, in the energy sector of Azerbaijan western influence can be observed more than Chinese. The reason behind this difference is that after independence, Azerbaijan has built strong relations with western countries which aimed to gain access to Caspian resources in order to meet their energy demands and all the major oil and gas fields of the country located in the

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<sup>212</sup> Cihan Bulut, Elchin Suleymanov, Nurtac Vidadili, “Transition to Renewable Energy and Sustainable Energy Development in Azerbaijan”, *Renewable and Sustainable Energy Reviews*, December 2017, p.10.

<sup>213</sup> Ulviyye Aydın, “Energy Insecurity and Renewable Energy Sources: Prospects and Challenges for Azerbaijan”, *ADBI Institute*, August 2019, p.8.

<sup>214</sup> Cihan Bulut, Elchin Suleymanov, Nurtac Vidadili, “Transition to Renewable Energy and Sustainable Energy Development in Azerbaijan”, *Renewable and Sustainable Energy Reviews*, December 2017, p.9.

Caspian basin were already commissioned to western companies. The only presence of China in the oil production of Azerbaijan may be observed in the Salyan oilfield in which CNPC has a 25% stake in the development of the field.<sup>215</sup> Therefore, although Chinese companies do not have significant stakes in oil and gas production in Azerbaijan, however they provide EPC services in the renewable energy sector instead of commissioning huge investments.

Azerbaijan has signed a MoU with EU in 2006 which aims to enhance cooperation between two sides in the field of energy.<sup>216</sup> Especially after the first Ukrainian gas crisis in 2006 and Russia-Ukraine gas crisis in 2009, EU faced an energy security risk especially the countries of South and Eastern Europe which mostly depend on Russian gas. Therefore, the transport of gas from Azerbaijan became even more vital for these countries to meet their energy demand in a more secure and sustainable manner. Azerbaijan has expressed its interest to export gas to these countries via different projects like Nabucco, ITGI (Interconnector Turkey-Greece-Italy) and TAP, and thus in 2011 the President of Azerbaijan Ilham Aliyev and the President of the European Commission Jose Manuel Barroso signed a formal declaration regarding the export of gas from Azerbaijan to EU via the Southern Gas Corridor system<sup>217</sup> which consists of South Caucasus Pipeline, TANAP and TAP. To sum up, most of Azerbaijan's oil and gas fields were already exploited and the resources were already contracted to be sent to these countries.

Given these circumstances, China had established a different approach towards Azerbaijan in its energy policy comparing to East Caspian countries. So that,

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<sup>215</sup> Christina Y. Lin, "The Caspian Sea: China's Silk Road Strategy Converges with Damascus", *China Brief*, 2010, p.10.

<sup>216</sup> Sabina Strimbovschi, "The Influence of Energy Resources in Developing "Pragmatic" Relations between Azerbaijan and the West", *CES Working Papers*, October 2016, p.511.

<sup>217</sup> Sabina Strimbovschi, "The Influence of Energy Resources in Developing "Pragmatic" Relations between Azerbaijan and the West", *CES Working Papers*, October 2016, p.517.

Chinese policy towards Azerbaijan in the field of energy is not to secure its energy supplies like in the cases of Kazakhstan and Turkmenistan but to enhance relations with the country due to its geostrategic location. The reason why the location of Azerbaijan is strategically important to China is that Azerbaijan is located on China-Central Asia-West Asia economic corridor which is one of the six economic corridors within the Belt and Road Initiative announced by China.<sup>218</sup> Therefore, in order to strengthen the relations with Azerbaijan, Chinese companies are providing know-how and technology for the development of the renewable energy sector of Azerbaijan by becoming EPC contractors in the country as Chinese companies are highly experienced in renewable energy technologies.

Chinese company China National Electric Equipment Corporation (CNEEC) won a contract to the reconstruction of the Azerbaijani Thermoelectric Power Station in 2007 and also won another contract in 2010 for the repairment of Mingechevir and Varvara hydropower stations.<sup>219</sup> Moreover, for the purpose of enhancing relations with Azerbaijan, China has been providing loans for the improvement of energy infrastructure in Azerbaijan. In 2016, China based Asian Infrastructure Investment Bank has provided 600 million USD worth loan to be allocated to the construction of Trans Anatolian Pipeline.<sup>220</sup>

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<sup>218</sup> Bai Lianlei, “Azerbaijan in the Silk Road Economic Belt: A Chinese Perspective”, *Caucasus International*, 2016, p.29.

<sup>219</sup> Feride Inan & Diana Yayloyan, “New Economic Corridors in the South Caucasus and the Chinese One Belt One Road”, *Tepav*, 2018, p.67.

<sup>220</sup> Nadege Rolland, “China’s Ambitions in Eastern Europe and the South Caucasus”, *Ifri*, December 2018, p.12.

## CHAPTER 5

### CHINA-IRAN ENERGY RELATIONS

Being one of the littoral states of the Caspian Sea, Iran holds a different status than the other countries since the country has been experiencing US-led international sanctions, targeting primarily its energy sector. In mid 2012 the nuclear related international sanctions went into effect and the oil export of Iran started to sharply decline until 2016, when the Joint Comprehensive Plan of Action (JCPOA) was outlined which lifted the sanctions of the country.<sup>221</sup> After then crude oil and condensate production and also exports of oil and gas have started to increase to the levels before 2012. The JCPOA or namely the nuclear deal was concluded by China, France, Russia, the United Kingdom, the United States, Germany and Iran to ensure that Iran's nuclear program will be carried out entirely in a peaceful manner.

After the deal was introduced, Iranian authorities have announced a program to revive the oil production and export potential of Iran. This program included:

1. Identifying and prioritizing oilfields requiring recovery and development in order to increase production capacity,
2. Reformulating the oil contract model to attract foreign investment, technology and expertise,
3. Regaining global market share in crude oil export lost due to sanctions so as to maximize sales and revenue.<sup>222</sup>

However, in May 2018, US announced its exit from the nuclear deal and have started to gradually bring back the sanctions on the country. Similar to the sanctions in 2012, these sanctions also targeted the energy sector of Iran which

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<sup>221</sup> "Country Analysis Brief: Iran", *U.S. Energy Information Administration*, April 2018, p.1.

<sup>222</sup> Sujata Ashwarya, "Rehabilitation and Expansion of Iran's Oil Sector in the Post-Nuclear Deal Era: Programs, Problems and Uncertainties", *Perceptions*, 2016, p.36.

compromises a large share of the country's budget. The sanctions aimed to prevent investments in the country by foreign companies and prevent third countries from importing energy resources from Iran.<sup>223</sup>

The sanctions imposed on Iran have moved the country far away from being a net energy exporter not only by limiting the exports of the country but also by preventing the foreign investments. Currently, even though Iran has tremendous amounts of oil and gas reserves the production of these energy resources in the country is relatively low since most of the fields are underexploited and the producing wells lack technology and expertise. Therefore, in order to become a net energy exporter it is not enough to find an importer country for Iran unless the country fails to attract foreign investment.

Iran ranks 4<sup>th</sup> in the World and accounting for about 9.5% of the world's total oil reserves with 157.5 billion barrels of proven reserves as of 2016.<sup>224</sup> When it comes to natural gas, Iran ranks 2<sup>nd</sup> in world and accounting for 17% of the world's total natural gas reserves with 1.183 trillion cubic feet (Tcf) of proven gas reserves as of 2017.<sup>225</sup>

## 5.1. Iran Energy Sector

In Iran just like other Caspian states energy sector is dominated by the government. The Supreme Energy Council chaired by the President of Iran was established in 2001 and this council oversees the energy sector in the country. Under the supervision of the Ministry of Petroleum, all the activities in the oil

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<sup>223</sup> David Ramin Jalilvand, "Back to Square One? Iranian Energy After the Re-Imposition of US Sanctions", *The Oxford Institute for Energy Studies*, March 2019, p.2.

<sup>224</sup> Iran Oil, Worldometer, Access Date: 12.06.2020, Website URL: <https://www.worldometers.info/oil/iran-oil/>.

<sup>225</sup> Iran Natural Gas, Worldometer, Access Date: 12.06.2020, Website URL: <https://www.worldometers.info/gas/iran-natural-gas/>.

and gas sector are dominated by the state owned companies which are primarily National Iranian Oil Company (NIOC), the National Iranian Gas Company (NIGC), National Oil Refining and Distribution Company (NIORDC) and the National Petrochemical Company (NPC).<sup>226</sup>

Being controlled by national companies without adequate investment, Iranian oil and gas fields are currently exploited by outdated technology, therefore despite large amount of reserves the country's oil and gas production is relatively low. In order to increase production to enhance contribution to the national budget, NIOC has tried to produce above the sustainable capacity of the fields which resulted in serious damage in the fields.<sup>227</sup> Therefore, the advanced technologies of foreign companies is needed to improve the capacity of production.

In terms of the development of oil and gas fields, Iran used to implement the buyback model which allowed foreign companies only to be a part of the development phase together with an Iranian subsidiary but not of the phase of production, so then the field went back to the Iranian partner. However after JCPOA the country has introduced a new model namely the Iran Petroleum Contract (IPC) which envisages establishment of a joint venture between international companies and an Iranian entity and this joint venture will be involved in exploration and development phases and also in the production phase.<sup>228</sup> With the new model it is aimed to prevent the decrease of the production by benefiting from the technology and knowledge of the foreign companies in the production and recovery phases. Along with the introduced model several international energy companies have signed agreements with

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<sup>226</sup> "Country Analysis Brief: Iran", *U.S. Energy Information Administration*, April 2018, p.3.

<sup>227</sup> P. Shamma, "Iran: Review of Petroleum Developments and Assessments of the Oil and Gas Fields", *Energy Exploration & Exploitation*, 2001, p.209.

<sup>228</sup> Sujata Ashwarya, "Rehabilitation and Expansion of Iran's Oil Sector in the Post-Nuclear Deal Era: Programs, Problems and Uncertainties", *Perceptions*, 2016, p.41.

NIOC to conduct field studies in advance and by November 2016 nine confidentiality agreements were signed with France's Total; Indonesia's Pertamina; Russia's Lukoil, Gazprom Neft, Zarubezhneft and Tatneft; Austria's OMW, Germany's Wintershall, Poland's Polish Oil and Gas Company (PGNIG) and Norway's DNO ASA.<sup>229</sup> Apart from these confidentiality agreements, so far two field development and production agreements were signed under IPC. The first one was signed in June 2017 with Total and CNPC to the development of Phase 11 of the South Pars field and the second one was signed in mid-2018 with the Russian state owned company Zarubezhneft to develop the West Paydar and Abadan onshore fields.<sup>230</sup>

### 5.1.1. Oil

Possessing large amounts of oil reserves, Iran has not been able to fully exploit its reserves and the oil production of the country is correlated with the imposed sanctions. The country's oil production suffers from lack of technology which is one of the direct consequences of the western sanctions. Because of depletion, oil production has been declining which is estimated to amount of around 6% of Iran's production capacity per year.<sup>231</sup>

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<sup>229</sup> Sujata Ashwarya, "Rehabilitation and Expansion of Iran's Oil Sector in the Post-Nuclear Deal Era: Programs, Problems and Uncertainties", *Perceptions*, 2016, p.44.

<sup>230</sup> "Country Analysis Brief: Iran", *U.S. Energy Information Administration*, April 2018, p.4.

<sup>231</sup> Bijan Khajehpour, "The Future of the Petroleum Sector in Iran", *Legatum Institute Global Transitions*, September 2013, p.2.

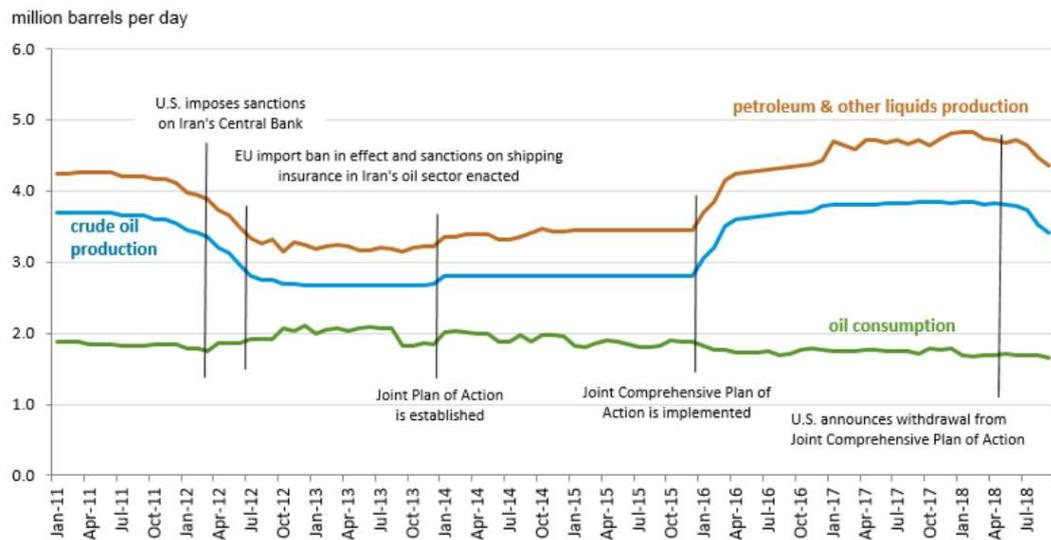


Figure 8 Iranian Petroleum and Other Liquids Production and Consumption<sup>232</sup>

Source: EIA

According to EIA, in 2012 crude oil production has started to decline when the US sanctions were implemented and has started to increase to pre-2012 levels when the JCPOA has started to be implemented. Currently since the nuclear deal is cut off, crude oil production has started to decline again (Figure 8).

The country has 102 oilfields and 205 oil reservoirs and most of them are located in the onshore areas especially in the Khuzestan Basin possessing around 80% of the total onshore reserves of the country.<sup>233</sup> Iran has small reserves in the Caspian Sea, however these reserves have very limited upstream activity and moreover, the country has shared oil fields with other countries like Kuwait, Qatar, Iraq, United Arab Emirates and Saudi Arabia. These countries have already started to exploit these fields which results in a significant loss of reserves for Iran.

<sup>232</sup> "Country Analysis Executive Summary: Iran", *U.S. Energy Information Administration*, January 2019, p.3.

<sup>233</sup> "Country Analysis Brief: Iran", *U.S. Energy Information Administration*, April 2018, p.4.

Since several fields have already reached the plateau level, Iran needs advanced technical investments as it was stated by the Managing Director of the NIOC. Ali Kardor indicated that Iranian oil industry requires a 100 billion USD of investment in the upstream sector during the period of five year development plan (2016-2021) for optimal productivity.<sup>234</sup>

Regarding oil exports, the most important route to transport Iranian oil is the Strait of Hormuz to Persian Gulf countries so that in 2016, an estimated 18.5 million b/d of crude oil and refined products were transported through this route.<sup>235</sup>

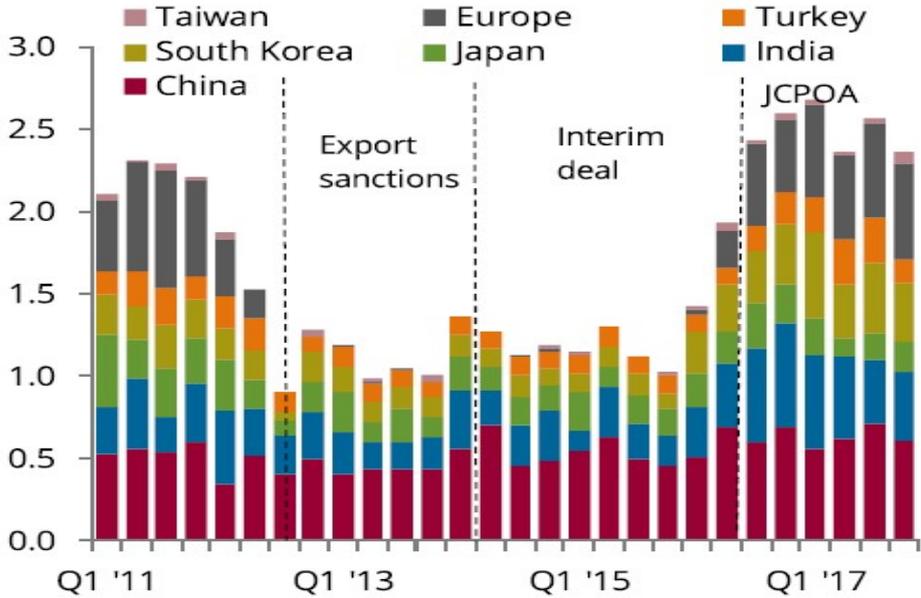


Figure 9 Iranian Oil Exports mb/d<sup>236</sup>  
 Source: Energy Aspects

<sup>234</sup> Sujata Ashwarya, “Rehabilitation and Expansion of Iran’s Oil Sector in the Post-Nuclear Deal Era: Programs, Problems and Uncertainties”, *Perceptions*, 2016, p.37.

<sup>235</sup> “Country Analysis Brief: Iran”, *U.S. Energy Information Administration*, April 2018, p.1.

<sup>236</sup> David Ramin Jalilvand, “Progress, Challenges, Uncertainty: Ambivalent Times for Iran’s Energy Sector”, *The Oxford Institute for Energy Studies*, April 2018, p.2.

As can be seen from the figure above, Iranian oil exports have dramatically increased after the implementation of JCPOA with significant exports to China, India, South Korea and also Europe. However after the end of JCPOA, Iran lost the European market since the oil transport has stopped while all European companies withdrew from Iran including France's Total. Throughout 2018, since all the international oil and gas companies abandoned the country, oil exports fell sharply and exports amounted to around 1 mb/d.<sup>237</sup>

In the context of 2018 sanctions, US granted temporary sanction waivers to eight importers of Iranian oil: China, Greece, India, Italy, Japan, South Korea, Taiwan and Turkey. These countries were allowed to import oil from Iran for a period of 180 days, however the neighboring countries especially Turkey and Iraq are continuing to import Iranian oil in order to ensure their energy security. In the case of Asian countries, they have shown great sensitivity to US sanctions by not only stabilizing their oil exports but also do not filling the place of departed European companies.<sup>238</sup>

When it comes to the refining capacity of Iran, the country had 2 million b/d refining capacity in 2017.<sup>239</sup> The country is one of the largest oil consumer countries in the world with an amount of 1.8 million b/d which equivalent 2.2% of world total oil production<sup>240</sup> and currently the refining capacity is adequate to meet the consumption. The majority of crude oil is either refined into gasoline or transformed into diesel or heating oil.

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<sup>237</sup> David Ramin Jalilvand, "Back to Square One? Iranian Energy After the Re-Imposition of US Sanctions", *The Oxford Institute for Energy Studies*, March 2019, p.3.

<sup>238</sup> David Ramin Jalilvand, "Back to Square One? Iranian Energy After the Re-Imposition of US Sanctions", *The Oxford Institute for Energy Studies*, March 2019, p.7.

<sup>239</sup> "Country Analysis Executive Summary: Iran", *U.S. Energy Information Administration*, January 2019, p.4.

<sup>240</sup> Bijan Khajepour, "The Future of the Petroleum Sector in Iran", *Legatum Institute Global Transitions*, September 2013, p.4.

### 5.1.2. Natural Gas

Iran's total gas production in 2017 was around 9.5 Tcf and of which 7.3 Tcf was dry natural gas while the country's gas consumption was 6.9 Tcf.<sup>241</sup> Iran is the world's fourth largest gas consumer country after US, Russia and China, therefore taking into consideration the rising consumption the gas exports of the country is not expected to increase and since the domestic gas consumption is high, Iran imports gas from Turkmenistan since 1997 with a volume of 5 Mcm/d via a pipeline supplying the north east of the country.<sup>242</sup>

In order to increase the gas production of the country, Iran needs to prioritize developing the dormant blocks in the South Pars field which is supplying half of the country's gas production. The South Pars field is a shared field with Qatar located in the Persian Gulf and only half of the 24 blocks of Iran have been developed so far<sup>243</sup>, while Qatar extracts 70% more gas than Iran.<sup>244</sup> Although, Oil Minister Zanganeh announced that in order to develop the country's main gas supplier area the South Pars field, 30 billion USD dollars of investment is needed, the re-imposition of the sanctions in 2018 prevented the fulfillment of this requirement.<sup>245</sup>

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<sup>241</sup> "Country Analysis Brief: Iran", *U.S. Energy Information Administration*, April 2018, p.15.

<sup>242</sup> P. Shamma, "Iran: Review of Petroleum Developments and Assessments of the Oil and Gas Fields", *Energy Exploration & Exploitation*, 2001, p.215.

<sup>243</sup> Serhan Ünal, "Post-Sanctions Iran and Regional Energy Geopolitics", *Turkish Energy Foundation*, February 2016, p.22.

<sup>244</sup> Antoine Heuty, "Iran's Oil and Gas Management A Ticking Bomb?", *Revenue Watch Institute*, February 2012, p.2.

<sup>245</sup> Serhan Ünal, "Post-Sanctions Iran and Regional Energy Geopolitics", *Turkish Energy Foundation*, February 2016, p.21.

Iran exports natural gas via pipelines to Turkey, Armenia, Azerbaijan and recently Iraq and it receives imports from Turkmenistan. In 2017, the total exports via pipelines were 450 Bcf and the total imports were 170 Bcf (Figure 10).

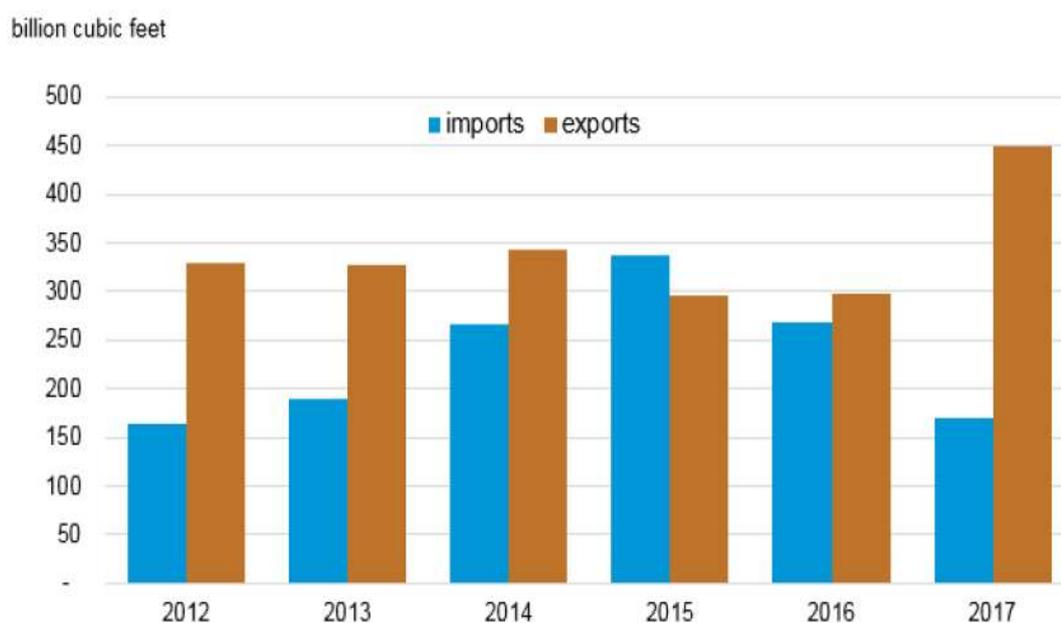


Figure 10 Iran's Natural Gas Pipeline Imports and Exports<sup>246</sup>

Source: EIA

Although many projects were initiated for the export of Iranian gas, only Iranian-Turkish project with a capacity of 8.4 bcm was materialized and also small scale trade has begun with Armenia and Azerbaijan.<sup>247</sup> Gas trade between Iran and Turkey has been interrupted several times due to shortages of Iranian supply during winter periods and technical problems on the pipeline mostly stemmed from terrorist attacks. Regarding the exports to Azerbaijan, as it was mentioned in the previous chapter, this volume of gas is aimed to be delivered to

<sup>246</sup> “Country Analysis Executive Summary: Iran”, *U.S. Energy Information Administration*, January 2019, p.6.

<sup>247</sup> David Ramin Jalilvand, “Iran’s Gas Exports: Can Past Failure Become Future Success?”, *The Oxford Institute for Energy Studies*, June 2013, p.4.

Nakhchivan Autonomous Republic due to lack of connection between Azerbaijan and its enclave. Finally, in 2017 Iran announced the start of natural gas export to Iraq.<sup>248</sup>

In the form of LNG, Iran exports 7.5 million tons of LNG to India under the agreement which is valid for 25 year period starting from 2009.<sup>249</sup> The country also exports natural gas in the form of LNG to Asian markets especially to China.

In order to not to experience supply shortages in Tehran and Qom especially during winter times, NIGC initiated the Yort-e Shah gas storage project worth up to 100 million USD.<sup>250</sup> Along with this project, two gas storage facilities are in operation in Iran with a total capacity of 9 bcm per year.<sup>251</sup> Increasing the gas storage capacity is crucial to Iran since the country experiences occasional gas shortages especially in winter period when the consumption reaches to the peak level.

### **5.1.3. Renewable Energy**

Due to large amounts of oil and gas reserves, the energy mix of Iran mostly consists of these resources rather than renewable resources. Natural gas is the largest source for electricity generation with a share of 70 and the renewables only has a total share of less than 7% (Chart 4).

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<sup>248</sup> David Ramin Jalilvand, "Progress, Challenges, Uncertainty: Ambivalent Times for Iran's Energy Sector", *The Oxford Institute for Energy Studies*, April 2018, p.3.

<sup>249</sup> Bezen Balamir Coşkun, "Global Energy Geopolitics and Iran", *Uluslararası İlişkiler*, 2009, p.184.

<sup>250</sup> P. Shamma, "Iran: Review of Petroleum Developments and Assessments of the Oil and Gas Fields", *Energy Exploration & Exploitation*, 2001, p.216.

<sup>251</sup> Serhan Ünal, "Post-Sanctions Iran and Regional Energy Geopolitics", *Turkish Energy Foundation*, February 2016, p.3.

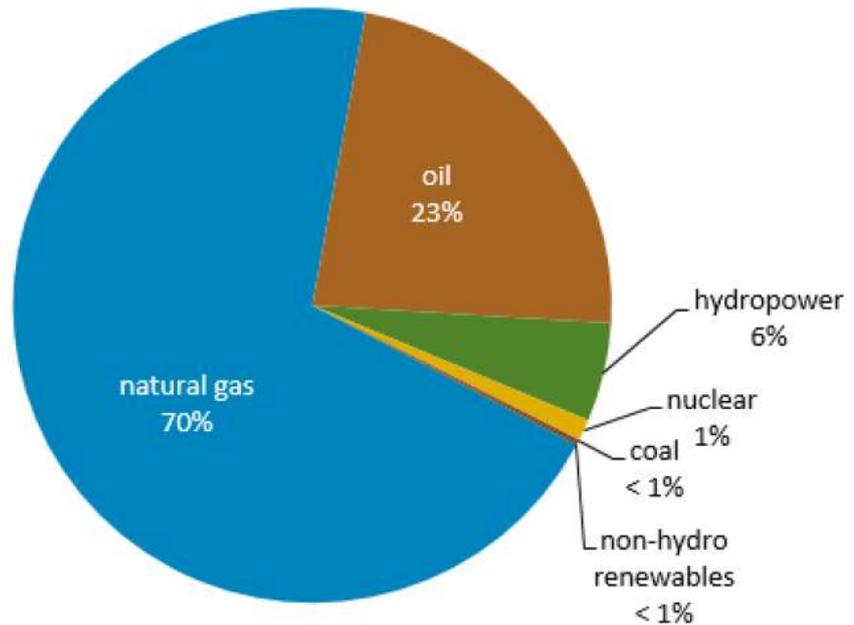


Chart 4 Iran Electricity Generation by Fuel<sup>252</sup>

Source: EIA

Ministry of Energy of Iran has established two organizations in 1994 and 1995 to promote renewable investments in the country namely Iran Energy Efficiency Organization (SABA) and Renewable Energy Organization (SUNA).<sup>253</sup> Moreover, the government amended the law in 2015 and increased the incentives for renewable investments by extending the period of guaranteed power purchase from 5 years to 20 years and also regulating the tariff methodology.<sup>254</sup>

Under the five year development plan Iran has set ambitious targets from which the country is far away from achieving. In the fifth five year development plan

<sup>252</sup> “Country Analysis Executive Summary: Iran”, *U.S. Energy Information Administration*, January 2019, p.8.

<sup>253</sup> Saeed Moshiri & Stefan Lechtenböhmer, “Sustainable Energy Strategy for Iran”, *Wuppertal Institute for Climate, Environment and Energy*, 2015, p.22.

<sup>254</sup> “Renewable Energy in Iran”, *Watson Farley & Williams Briefing*, May 2016, p.2.

(2010-2015) the renewables were supposed to provide 5000 MW of electricity<sup>255</sup> while also in the sixth year development plan (2015-2020) the target was the same for 2018.<sup>256</sup>

Currently among renewable energy resources hydro energy has been used more than others even though solar and wind energy potential of the country are also promising. The country has a potential of hydroelectric power generation between 23 and 42 GW and with the additional capacity planned by the government, Iran hopes to generate 14 GW of electric from hydropower by 2021.<sup>257</sup> Regarding solar potential, the country has high solar irradiation especially in the central and southern regions of Iran and an average of 300 sunny days per year.<sup>258</sup> Finally the wind power potential of the country is around 20.000 MW however a very small part of this potential has been utilized.<sup>259</sup>

The renewable sector of Iran requires foreign investments like the oil and gas sectors as the country lacks technology and expertise regarding the utilization of these resources. However as the US sanctions have begun to be implemented again in 2018, currently the country has to increase its renewable installation capacity with only domestic investments.

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<sup>255</sup> Mohsen Safari & Fariborz Safari, “Renewable Energy Sources in Iran: Policy and Regulation”, *Journal of Politics and Law*, July 2017, p.245.

<sup>256</sup> Eric Wheeler & Michael Desai, “Iran’s Renewable Energy Potential”, *Middle East Institute*, 26.01.2016, Access Date: 12.06.2020, Website URL: <https://www.mei.edu/publications/irans-renewable-energy-potential>.

<sup>257</sup> Mahmoud E. Balooch, “Status of Renewable Energy Sources in Iran”, *International Journal of Engineering and Management Sciences*, 2015, p.177.

<sup>258</sup> “Renewable Energy in Iran”, *Watson Farley & Williams Briefing*, May 2016, p.1.

<sup>259</sup> Mahmoud E. Balooch, “Status of Renewable Energy Sources in Iran”, *International Journal of Engineering and Management Sciences*, 2015, p.178.

## 5.2. China-Iran Energy Relations

China with its growing energy demand has become the major energy trade partner of Iran since the US sanctions period starting from 2012 and this trade even accelerated after the implementation of JCPOA. China imported nearly 840,000 bb/d of oil in April 2016 and in May 2016 during the signing of a MoU on oil cooperation Deputy Administrator of China's National Energy Administration Zhang Yuqing has expressed his country's willingness to purchase 50% of Iran's oil exports.<sup>260</sup>

Along with the increasing trade volumes, Chinese CNPC wanted to benefit from the lifting of the sanctions by signing a 4.8 billion USD worth contract with Total in 2017 to develop the Phase 11 of the South Pars field.<sup>261</sup> However after the re-imposition of the sanctions in 2018, this deal was cancelled by Total. China, like other countries respected the sanctions and did not want to risk too much by increasing trade volumes and investments in Iran while also trying to benefit from the weak position of the country. This strategy can be observed from the Sinopec offer on further development of the Yadavaran oil field in which the company has already been engaged in.<sup>262</sup> The Company's offer includes an investment proposal worth up to 3 billion USD, however the contractual terms were so tough that Iranian officials had to reject the proposal even in such hard times.

With its rich energy reserves and geostrategic position, Iran has an important place in China's Belt and Road Initiative. However, the loans allocated by China

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<sup>260</sup> Sujata Ashwarya, "Rehabilitation and Expansion of Iran's Oil Sector in the Post-Nuclear Deal Era: Programs, Problems and Uncertainties", *Perceptions*, 2016, p.47.

<sup>261</sup> David Ramin Jalilvand, "Progress, Challenges, Uncertainty: Ambivalent Times for Iran's Energy Sector", *The Oxford Institute for Energy Studies*, April 2018, p.4.

<sup>262</sup> David Ramin Jalilvand, "Back to Square One? Iranian Energy After the Re-Imposition of US Sanctions", *The Oxford Institute for Energy Studies*, March 2019, p.7.

under this strategy could not be directed to Iran, which needs investments more than other countries. It is considered that the main reason for this situation is not the current non-democratic administration in Iran, but China's unwillingness to contradict with America, which introduced the sanctions on Iran in the first place. Therefore, as also mentioned in the first chapter, the argument that China shows an equal approach in the realization of the investments within the scope of the Belt and Road Initiative regardless of the political structure of the countries to be invested remains valid.

## CHAPTER 6

### CHINA-RUSSIA ENERGY RELATIONS

Possessing vast amount of hydrocarbon resources, Russia is one of the most important countries in the world energy market. The country ranks 1<sup>st</sup> in the world and accounting 24% of the world's total natural gas reserves with 1,688 Tcf of proven reserves as of 2017, while it ranks 2<sup>nd</sup> in the world in terms of gas production.<sup>263</sup> When it comes to oil, Russia ranks 3<sup>rd</sup> in the world in terms of oil production and ranks 8<sup>th</sup> in the world and accounting 4.8% of the world's proven oil reserves with 80 billion barrels of proven reserves.<sup>264</sup>

Regarding its significant growing energy demand China, can be an alternative energy trade partner for Russia other than the EU along with the imposition of the western sanctions. Currently, the production of energy resources of Russia are realized from the western fields while the eastern fields remain undeveloped. By enhancing relations with China, Russia will be able to achieve the necessary loans for the development of its eastern fields while also directing the produced resources from these fields to a significant Asian energy market. However, as it may seem as an ideal option for both countries to enhance their energy ties, energy relations between two countries has been growing rather slowly than expected.

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<sup>263</sup> Russia Natural Gas, Worldometers, Access Date: 26.06.2020, Website URL: <https://www.worldometers.info/gas/russia-natural-gas/>.

<sup>264</sup> Russia Oil, Worldometers, Access Date: 26.06.2020, Website URL: <https://www.worldometers.info/oil/russia-oil/>.

## 6.1. Russia Energy Sector

Although Russia has such vast amount of energy resources, oil and gas production in the country is underdeveloped. The reason behind this backwardness is the weakness of the country in terms of technology which is mainly imported from other countries.<sup>265</sup> The main problems the country has been facing in the development of oil and gas production are; sanctions on the energy sector which jeopardizes the import of technology and equipment, inadequate innovative development of the oil and gas industry, the absence of necessary modern technologies for the development of the difficult production wells, falling prices of hydrocarbon raw materials which results in reduction in investments regarding the development of the new oil and gas fields for production and geological exploration.<sup>266</sup>

In Russia, energy sector holds a significant place in the country's budget with a proportion of 41% of the state budget and the revenues from oil and gas export amounted to 128 billion USD in 2019.<sup>267</sup> As the energy sector is the dominant sector of the country and the revenues hold a significant role in the state budget, the Russian authorities prioritize strong state control over the sector. Energy sector of the country is currently mostly dominated by state owned companies like Rosneft and Gazprom which are also considered as national champions. Differently than other countries relied on their state dominated energy sectors, Russia is considered as a state which uses its energy resources as an instrument of foreign policy. This strategy has been mostly shaped by President Putin as he

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<sup>265</sup> "Oil & Gas Localisation in Russia: The New Frontier", *MIOGE Moscow*, 2018, p.3.

<sup>266</sup> Lyubov Vasilievna Larchenko & Roman Aleksandrovich Kolesnikov, "The Development of the Russian Oil and Gas Industry in Terms of Sanctions and Falling Oil Prices", *International Journal of Energy Economics and Policy*, 7:2, 2017, p.358.

<sup>267</sup> Vitaly Yermakov & James Henderson, "The New Deal for Oil Markets: implications for Russia's short-term tactics and long-term strategy", *The Oxford Institute for Energy Studies*, April 2020, p.9.

prevented the privatization of the energy assets from the moment he came into power and transferred these assets to the national champions Rosneft and Gazprom. Since then Russia has been using different strategies to strengthen its foreign policy by using its resources as leverage through the actions of these state companies. The main methods of the country regarding this strategy are; changing the price of the energy supplies according to existing circumstances, asset control of the energy companies as well as foreign companies, supply cuts, application of sharp contractual obligations and realizing alternative supply routes.<sup>268</sup>

### **6.1.1. Oil**

Russia's oil sector is mostly dominated by state owned companies as was mentioned in the previous section. Currently, Rosneft dominates 35% of the oil sector and the state directly controls half of the oil production in Russia via its ownerships in Rosneft, Bashneft and Gazpromneft.<sup>269</sup> The state authorities have declared the Energy Strategy of Russia for a period until 2030. According to this strategy the level of oil production is estimated to be around 535 million tonnes by 2030.<sup>270</sup> However, as of now the production of oil from the traditional oil fields in Russia have been declining in recent years, while the investments in newly discovered fields are not adequate to maintain the existing production growth rate. It is expected that in 2018-2019, the production levels will be around the same level as in previous years with the support of production growth

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<sup>268</sup> "Energy As a Tool of Foreign Policy of Authoritarian States, in Particular Russia", *EU Policy Department for External Relations*, April 2018, p.14.

<sup>269</sup> Tatiana Mitrova & Vitaly Yermakov, "Russia's Energy Strategy-2035", *Ifri*, December 2019, p.11.

<sup>270</sup> Lyubov Vasilievna Larchenko & Roman Aleksandrovich Kolesnikov, "The Development of the Russian Oil and Gas Industry in Terms of Sanctions and Falling Oil Prices", *International Journal of Energy Economics and Policy*, 7:2, 2017, p.353.

of the newly commissioned fields, however after 2025 due to decrease in reserve quality, oil production level will not remain at the same level.<sup>271</sup>

There are estimated more than 2600 oil fields in Russia and around 130,000 production wells and old wells represent 85% of the total output of all production wells.<sup>272</sup> Most of the reserves are located in West Siberia and in the Urals-Volga region extending into Caspian Sea, while the remaining are located in Eastern Siberia and the Arctic region.

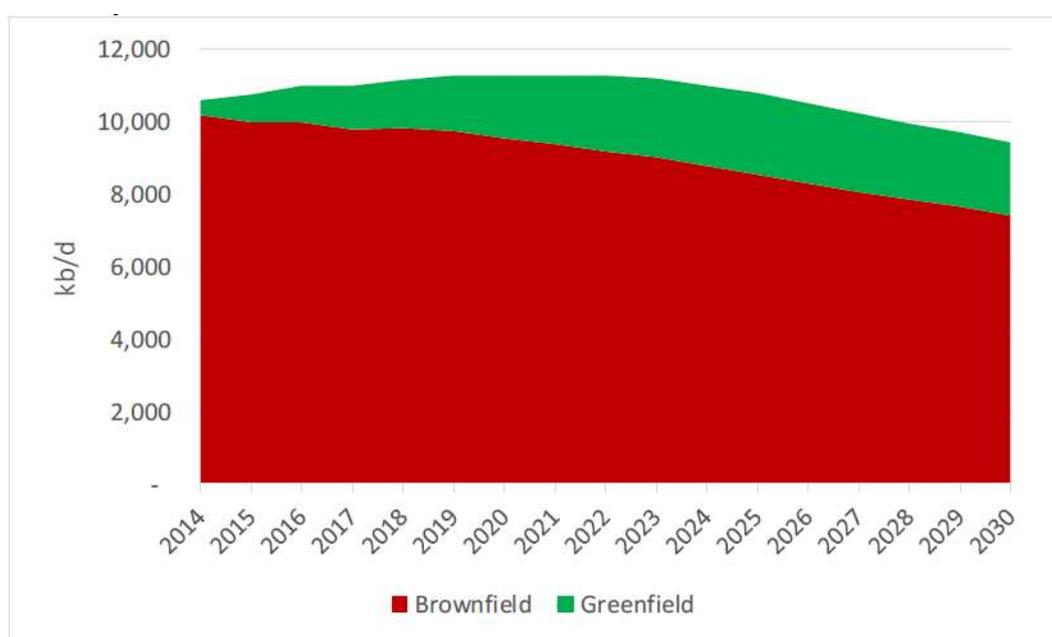


Figure 11 Russia Oil Production Forecast to 2025<sup>273</sup>

Source: The Author’s Analysis

<sup>271</sup> Tatiana Mitrova & Vitaly Yermakov, “Russia’s Energy Strategy-2035”, *Ifri*, December 2019, p.7.

<sup>272</sup> Vitaly Yermakov & James Henderson, “The New Deal for Oil Markets: implications for Russia’s short-term tactics and long-term strategy”, *The Oxford Institute for Energy Studies*, April 2020, p.20.

<sup>273</sup> James Henderson & Ekaterina Grushevenko, “The Future of Russian Oil Production in the Short, Medium and Long Term”, *The Oxford Institute for Energy Studies*, September 2019, p.7.

The brownfields in the figure represent the oil fields in Russia which have been operated for a long time and the greenfields represent the new oil fields at which the operation have just started. According to the figure, since 2014 the production level at the brownfields have started to decline until so far while after 2023 the production level at the greenfields will also start to decline. The reason why the production level at the greenfields are expected to decline despite the significant taxation advantages is that these fields are mostly located in far areas and they are technologically complex oil fields.

The companies producing oil in Russia are generally obliged to pay the mineral resources extraction tax, however, this tax is not imposed in some areas (Sakha Republic, Irkutsk Province or Krasnoyarsk) as well as in Eastern Siberia until accumulative oil production reaches 25 million tons.<sup>274</sup> This application is mainly to attract investment to Russia's more costly production regions. Along with this, the Russian authorities announced that the export duties for crude oil will not be imposed to 13 East Siberian oil fields for the same reason. In 2015, 15% of the total oil production in the country was from the mainland of the Arctic region while the offshore resources has advanced slower comparingly.<sup>275</sup> Recently, the Ministry of Energy of the Russian federation has announced the price range of oil production in the Russian Arctic shelf as between 52 and 81 USD per barrel<sup>276</sup> and the cost is getting closer to the upper limit when the field is located in the offshore area. Therefore, the investors have serious concerns whether their Project implementation cost will be below the specified price for a long time.

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<sup>274</sup> Goichi Komori, "Russian Oil Policy", *Asia Pacific Energy Research Centre IEEJ*, December 2010, p.10.

<sup>275</sup> Heli Simola & Laura Solanko, "Overview of Russia's Oil and Gas Sector", *BOFIT Policy Brief*, 2017, p.28.

<sup>276</sup> Lyubov Vasilievna Larchenko & Roman Aleksandrovich Kolesnikov, "The Development of the Russian Oil and Gas Industry in Terms of Sanctions and Falling Oil Prices", *International Journal of Energy Economics and Policy*, 7:2, 2017, p.354.

Due to high levels of oil consumption in Russia, just under half of the crude oil produced has been exported which amounts to 275 million out of 555 per year.<sup>277</sup> The rest of the crude oil is refined domestically and some is exported as refined products and some is used in the domestic market. However as the production rates of the oil fields are declining, the export volumes of the country have started to decline correspondingly, along with the adverse effect of the US and EU imposed sanctions which hinders the necessary investment on the development of the new production fields and also the investments regarding the improvement of the existing infrastructure. The share of oil and oil products in the total energy export of the country is expected to decrease from 60% in 2015 to 51-55% by 2040.<sup>278</sup>

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<sup>277</sup> Nikita O. Kapustin & Dmitry A. Grushevenko, “A Long-Term Outlook on Russian Oil Industry Facing Internal and External Challenges”, *Oil & Gas Science and Technology*, July 2019, p.4.

<sup>278</sup> “Global and Russian Energy Outlook 2016”, *The Energy Research Institute of the Russian Academy of Sciences & The Analytical Center for the Government of the Russian Federation*, 2016, p.150.

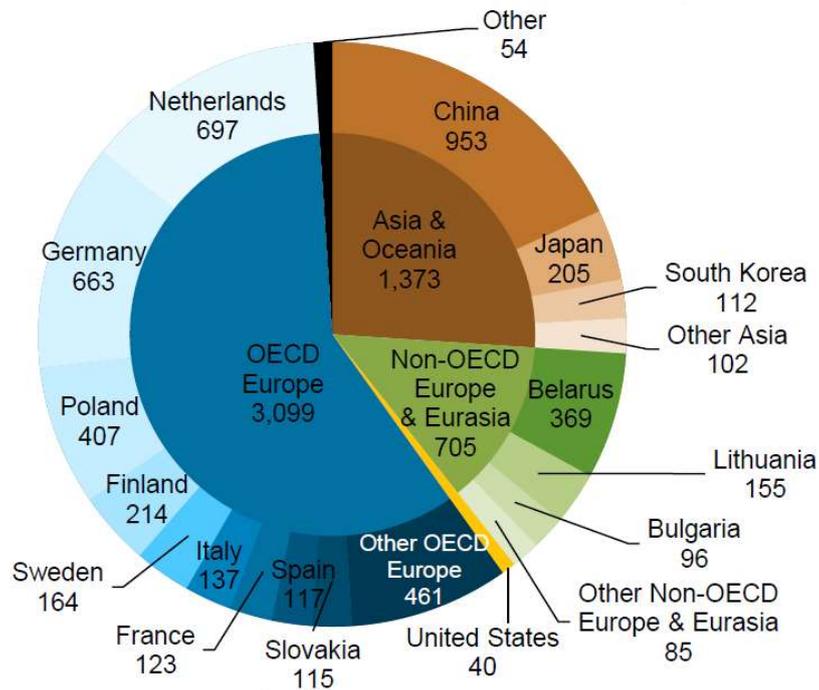


Chart 5 Russia's Crude Oil and Condensate Exports by Destination 2016<sup>279</sup>

Source: U.S. Energy Information Administration

The above chart shows the Russian oil exports by country and it seems that EU is still the main oil export market of Russia with a share of around 60%. However in recent years an increase can be observed in the oil exports to Asian countries especially to China.

Russia's newly discovered oil production fields are located mainly in Eastern Siberia and Russian Far East which makes it easier to transport the produced oil to the closest Asian market with a less expensive way. Therefore, Russia initiated the Eastern Siberia and Pacific Ocean (ESPO) pipeline which was introduced in 2009 and aimed to transport the oil produced in Eastern Siberia to Port of Kozmino and to China. The commissioning of the ESPO pipeline which

<sup>279</sup> "Country Analysis Brief: Russia", U.S. Energy Information Administration, 2017, p.11.

made possible the increase of oil exports to China, as in 2015, China became Russia's biggest oil importer.<sup>280</sup>

As the price of the Brent crude oil has started to decline significantly due to oversupply of oil in the world, Russia has consented to a production cut agreement in December 2016 with the OPEC which is also called as OPEC+ deal and is periodically extended according to the demand of the Parties.<sup>281</sup> Despite the historical rivalry with Saudi Arabia, Russia has signed this in order to protect its own oil exports revenues which constitutes a major part in its budget.

Under this section the oil refinery sector of Russia should also be mentioned as the country is one of the biggest exporter of refined oil products in the World. The country has more than 30 oil refineries with a capacity of 5.1 million b/d of crude oil distillation as of 2017.<sup>282</sup> The largest refinery operator is Rosneft and the second is Lukoil. The largest refining region in the country is the Volga region with representing one third of the total refining capacity of Russia.<sup>283</sup>

### **6.1.2. Natural Gas**

Russia is the second largest natural gas producer country in the World and also a large gas consumer country as two thirds of the production is consumed domestically. According to the World Energy Outlook of IEA, natural gas

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<sup>280</sup> Tom Roseth, "Russia's Energy Relations with China: Passing the Strategic Threshold?", *Eurasian Geography and Economics*, 2017, p.2.

<sup>281</sup> Tatiana Mitrova & Vitaly Yermakov, "Russia's Energy Strategy-2035", *Ifri*, December 2019, p.5.

<sup>282</sup> "Country Analysis Brief: Russia", *U.S. Energy Information Administration*, 2017, p.10.

<sup>283</sup> "REMAP 2030 Renewable Energy Prospects for the Russian Federation", *International Renewable Energy Agency Working Paper*, April 2017, p.46.

production in Russia has increased from 573 bcm in 2000 to 694 bcm in 2017 and also the production is expected to increase steadily until 2040.<sup>284</sup>

According to Ministry of Energy of Russia around 230 companies are engaged in gas production however Gazprom is the dominant actor in the gas sector. Until 2009 Gazprom's share was around 85% and although this share has decreased to 64% in 2016<sup>285</sup> the company is still controlling the entire gas sector. Rosneft and Lukoil follow Gazprom and additionally Novatek has gained a significant position especially in the LNG sector.

Russia's 3 supergiant gas fields Medvezhye, Urengoy and Yamburg located in Yamal-Nenets region have provided most of the Russian gas production since their discovery in 1972, 1978 and 1986 respectively.<sup>286</sup> All of the fields in the region belong to Gazprom and the other two large fields which have been discovered in 2001 and in 2012 are Zapolyarnoye and Bovanenkovo gas fields. The Zapolyarnoye has already reached its plateau level while production from Bovanenkova will increase upon the completion of Nord Stream 2 pipeline.<sup>287</sup>

Along with the production from this traditional region, Gazprom is also increasing its investments in new regions like Eastern Siberia and the Sakhalin Island. Two fields are under development which are hayadinskoye field in

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<sup>284</sup> "World Energy Outlook", *International Energy Agency*, 2018, p.179.

<sup>285</sup> Heli Simola & Laura Solanko, "Overview of Russia's Oil and Gas Sector", *BOFIT Policy Brief*, 2017, p.12.

<sup>286</sup> Jack D. Sharples, "The Shifting Geopolitics of Russia's Natural Gas Exports and Their Impact on EU-Russia Gas Relations", *Geopolitics*, 2016, p.886.

<sup>287</sup> "Country Analysis Brief: Russia", *U.S. Energy Information Administration*, 2017, p.18.

Yakutia region and Kovytko field in Irkutsk region.<sup>288</sup> These fields will be connected to the Power of Siberia Pipeline to transport gas to China.

Likewise in oil exports, Europe is the main destination for Russian gas exports. Gazprom currently has a pipeline network with a total capacity of 261 bcm annually to export gas to Europe mainly for the gas produced in Northwestern Siberia, while 142 bcm is transported via Ukraine, 48 bcm via Belarus, 55 bcm via Nord Stream pipeline and 16 bcm directly to Turkey.<sup>289</sup> These exports have been realized through long term gas contracts which include take-or pay clauses and also destination clauses. The duration of the contracts are around 25 years and take or pay clauses generally means that if the purchasing country purchases less than the fixed amount in the contract, it has to pay a fee even if it does not receive the rest of the gas.<sup>290</sup> On the other hand, the destination clause prohibits the purchasing country to resell the gas purchased from Gazprom to other countries. The reason why Russia has been exporting its gas through these contracts is to stabilize the flow of income for a long period of time in order to reimburse the investment cost of the relevant infrastructure.

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<sup>288</sup> “Country Analysis Brief: Russia”, *U.S. Energy Information Administration*, 2017, p.19.

<sup>289</sup> Jack D. Sharples, “The Shifting Geopolitics of Russia’s Natural Gas Exports and Their Impact on EU-Russia Gas Relations”, *Geopolitics*, 2016, p.893.

<sup>290</sup> “Energy As a Tool of Foreign Policy of Authoritarian States, in Particular Russia”, *EU Policy Department for External Relations*, April 2018, p.23.

Table 7 Russia's Major Natural Gas Pipelines<sup>291</sup>

Facility	Status	Capacity (trillion cubic feet per year)	Total length (miles)	Supply regions	Markets	Details
<b>Western pipelines</b>						
Yamal-Europe	operating	1.2	more than 1,000	West Siberian fields including Urengoy area	Poland, Germany, and northern Europe via Belarus	first section started operations in 1996
Blue Stream	operating	0.6	750	West Siberian fields including Urengoy area	Turkey via the Black Sea	started operations in 2003
Nord Stream	operating	1.9	760	West Siberian fields including Urengoy area	Germany and northern Europe via the Baltic Sea	started operations in 2011
Nord Stream 2	planning	1.9	760	West Siberian fields including Urengoy area	Germany and northern Europe via the Baltic Sea	planned start in 2019
Urengoy-Ukhta, Bovanenkovo-Ukhta, and Ukhta-Torzhek	operating and under construction	more than 5.0	more than 1,300	Bovanenkovo field on the Yamal peninsula and Urengoy area fields	Western Russia and Europe via Yamal-Europe, Nord Stream, and other routes	Urengoy-Ukhta-Torzhek started operations in 2006; the 1st Bovanenkovo-Ukhta line started operations in 2012
Soyuz and Brotherhood (Urengoy-Pomary- Uzgorod)	operating	more than 3.5	more than 2,800	West Siberian fields including Urengoy area, Russian Urals fields, and Central Asia	Western Russia and Europe via Ukraine	first major natural gas export lines to Europe, built and brought online during the Soviet era; first section started operations in 1967

Source: U.S. Energy Information Administration

However, the declining gas demand of Russia's main export market the EU and also the interruptions in transit through Ukraine in 2006 and 2009 led Russia to propose alternative pipelines like South Stream, TurkStream and an expansion of North Stream.<sup>292</sup> Also, Russia has recently started to develop an alternative policy regarding its gas exports by diversifying its export routes towards China under the Pivot to Asia policy.

The multiple gas crisis with Ukraine damaged the reputation of Gazprom in Europe as a reliable gas source and Ukraine became an unreliable transit route for Russia. Therefore, the South Stream Project was introduced which aimed to supply Europe with the expansion of Blue Stream Pipeline via Bulgaria. However, its predecessor TurkStream was accepted which will run under the Black Sea and reach to the Turkish coast and then to Europe via Bulgaria with a

<sup>291</sup> "Country Analysis Brief: Russia", *U.S. Energy Information Administration*, 2017, p.22.

<sup>292</sup> James Henderson & Tatiana Mitrova, "The Political and Commercial Dynamics of Russia's Gas Export Strategy", *The Oxford Institute for Energy Studies*, September 2015, p.3.

capacity of 31.5 bcm per year.<sup>293</sup> Additionally, in 2015 Russia announced the construction of the Nord Stream 2 line which is a parallel line to Nord Stream 1 with an additional capacity of 55 bcm per year.<sup>294</sup> The pipeline aims to deliver gas from Russian coast through the Baltic Sea to the coast of Germany.

Regarding the gas exports to China, in May 2014 a gas deal was signed between Russia and China to transport 38 bcm of gas per year<sup>295</sup> to China from the Eastern fields of Russia. The rest of the gas exports to Asia have been delivered to Asia in the form of LNG.

President Putin announced that Russia's LNG production will reach up to 120 million tonnes by 2035<sup>296</sup> and their strategy is to make Russia one of the main LNG producers in the World. The Russian government aims to accelerate LNG production especially in its Arctic region. Therefore, the government is providing tax breaks and other regulatory easiness like lower profit tax and state financing for the 75% of Sabetta Port construction.<sup>297</sup> Russia's first LNG plant located in the Sakhalin Island in the Far East has begun its operation in 2009 and is operated by the Sakhalin 2 consortium which consists of Gazprom, Shell,

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<sup>293</sup> "Energy As a Tool of Foreign Policy of Authoritarian States, in Particular Russia", *EU Policy Department for External Relations*, April 2018, p.28.

<sup>294</sup> "Energy As a Tool of Foreign Policy of Authoritarian States, in Particular Russia", *EU Policy Department for External Relations*, April 2018, p.26.

<sup>295</sup> Tatiana Mitrova & Vitaly Yermakov, "Russia's Energy Strategy-2035", *Ifri*, December 2019, p.3.

<sup>296</sup> James Henderson & Vitaly Yermakov, "Russian LNG: Becoming a Global Force", *The Oxford Institute for Energy Studies*, November 2019, p.1.

\*In 2016, Russia was the fourth largest nuclear power generator country in the world with seven nuclear reactors under construction.

<sup>297</sup> Tatiana Mitrova & Vitaly Yermakov, "Russia's Energy Strategy-2035", *Ifri*, December 2019, p.9.

Mitsui and Mitsubishi.<sup>298</sup> The second LNG plant has been built by a consortium led by Novatek in the Yamalo-Nenets region and the output capacity of the LNG plant is approximately 15 million tonnes.<sup>299</sup>

### 6.1.3. Renewable Energy

Russia has never been a leader in renewable energy mostly due to lack of advanced technology and the focus of the government on the development of the hydrocarbon resources in which it is more experienced. The draft Energy Strategy of Russia for 2035 indicates that the renewable energy share in consumption should increase from 3.2% to 4.9% until 2035.<sup>300</sup> In 2013 a Decree was passed which aimed to build a legal framework for the country's renewable energy policy. After this, the country has started to focus on increasing the share of renewables in electricity generation. According to International Renewable Energy Agency (IRENA), by 2030 Russia has the potential to increase its renewable share from 4.9% to 11.3%<sup>301</sup>, however the government has put less ambitious targets for the renewable energy sector.

The electricity production and distribution is governed by the state monopoly RAO Unified Energy Systems (RAO UES). Russia's electricity is generated mostly from gas, oil and coal which constitutes two third of the generation and

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<sup>298</sup> Heli Simola & Laura Solanko, "Overview of Russia's Oil and Gas Sector", *BOFIT Policy Brief*, 2017, p.13.

<sup>299</sup> *Ibid.*

<sup>300</sup> Tatiana Mitrova & Yuriy Melnikov, "Energy Transition in Russia", *Energy Transitions*, 2019, p.77.

<sup>301</sup> Tatiana Mitrova & Yuriy Melnikov, "Energy Transition in Russia", *Energy Transitions*, 2019, p.78.

the rest is generated from hydropower and nuclear power.\*<sup>302</sup> Total electricity production from renewable energy resources was 184 TWh per year in 2015 and biomass and hydropower accounted nearly all of this generation.

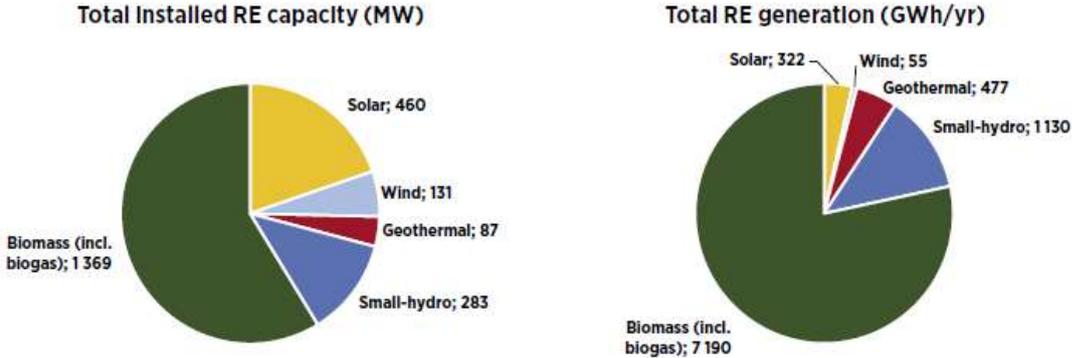


Chart 6 Total Installed Renewable Power Capacity and Generation by Technology, 2016<sup>303</sup>  
 Source: Mineenergo, 2017

In 2015 the country has added 57 MW of renewable capacity to its system (excluding large hydropower and biomass) and 70 MW of additional renewable energy capacity was introduced in 2016.<sup>304</sup>

The Russian state owned company RusHydro is the biggest hydropower producer company in the country. There are more than two million rivers in

<sup>302</sup> “Country Analysis Brief: Russia”, *U.S. Energy Information Administration*, 2017, p.1.

<sup>303</sup> “REMAP 2030 Renewable Energy Prospects for the Russian Federation”, *International Renewable Energy Agency Working Paper*, April 2017, p.13.

<sup>304</sup> “REMAP 2030 Renewable Energy Prospects for the Russian Federation”, *International Renewable Energy Agency Working Paper*, April 2017, p.11.

Russia which are dumping more than 4000 km<sup>3</sup> of water annually<sup>305</sup> and the hydro potential of the country is much more than the current utilized capacity. Regarding Solar energy, there are promising regions in the south western area as well as in the south east area of the country.



Figure 12 The Solar Energy Potential in Russia<sup>306</sup>

However, most of the solar potential has not been utilized since lack of introduction of solar projects initiated either by private or the public sector. One of the largest solar power plant is in Dagestan which has started to be operated in 2013 with a capacity of 1 MW and in the same year smaller plants have started to be operated with a total capacity of 166 kW.<sup>307</sup> Additionally in 2014, a 5 MW PV station was installed in Altai Region and later two more solar PV stations

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<sup>305</sup> Elena Douraeva, “Opportunities for Renewable Energy in Russia”, *International Energy Agency*, p.5.

<sup>306</sup> Lyudmila Serga & Ekaterina Chemezova & Elena Makaridina & Nataliya Samotoy, “Analysis of Prospects of Using Solar Energy in Russian Federation Economy”, *Procedia CIRP 40*, 2016, p.43.

<sup>307</sup> “REMAP 2030 Renewable Energy Prospects for the Russian Federation”, *International Renewable Energy Agency Working Paper*, April 2017, p11.

were installed in Orenburg and in the Republic of Khakasia with capacities of 25 MW and 5.2 MW respectively.<sup>308</sup>

The other potential source of the country is wind, however this resource has been underutilized like in the case of solar resource. Although Russia is considered to have the largest wind potential in the world, at the end of 2015 the installed capacity for wind amounted to only 111 MW.<sup>309</sup>

## **6.2. Russia-China Energy Relations**

Energy relations between Russia and China have started with the establishment of Russian-Chinese Energy Cooperation Committee in 1996 and the relations have been further enhanced by the establishment of Russia-China Energy Dialogue in 2008. After 2008, the energy trade between two countries has dramatically increased and Chinese companies have started to invest in the crucial Russian energy sector in mostly the sectors related to hydrocarbon resources.

Russian and Chinese energy relations have been mostly influenced by the imposed US and EU led sanctions targeting Russian energy sector so that in 2014 Russia announced its “Pivot to Asia” strategy. Although this strategy aimed to diversify the energy export market of Russia since Europe has been the energy export market, with the recent developments, this strategy has become China oriented rather than the whole Asian countries. The key points of this strategy include:

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<sup>308</sup> “REMAP 2030 Renewable Energy Prospects for the Russian Federation”, *International Renewable Energy Agency Working Paper*, April 2017, p.12.

<sup>309</sup> “REMAP 2030 Renewable Energy Prospects for the Russian Federation”, *International Renewable Energy Agency Working Paper*, April 2017, p.11.

1. Accelerated development of the Russian Far East and Eastern Siberia, 2. Overcoming the economic, social and demographic imbalances between western and eastern Russia, 3. Accelerated exploration and exploitation of eastern Russia's natural resources, 4. Attracting large foreign investors to help achieve the above goals, 5. Achieving Russia's comprehensive integration into the Asian economy.<sup>310</sup>

As the western fields were connected to the European market, Russia aimed to also benefit from its Eastern fields and build the necessary infrastructure to export these resources to the geographically close Asian market. Additionally, as these fields are more costly to exploit comparing to the western fields due to technical restrictions Russia also wanted to benefit from the Chinese loans for the development of its eastern resources.

Table 8 China's Oil Imports from Russia in 2011-2015<sup>311</sup>

Year	Chinese oil import (mill. ton)	Russian oil import (mill. ton)	proportion
2011	0.19	2.42	8%
2012	0.21	2.35	9%
2013	0.24	2.36	10%
2014	0.33	2.24	14.7%
2015	0.41	2.45	16.9%

Table 9 China's Gas Import from Russia 2012-2016<sup>312</sup>

Year	China oil import amount (billion cub.metr)	Russia oil export (billion cub.metr)	Proportion
2012	35	1600	2.2%
2013	45	1690	2.7%
2014	50	1750	2.85%
2015	58	1812	3.2%
2016	61	1900	3.21%

<sup>310</sup> Yury Federov, "Energy Exports to East Asia: The New Old Dimension of Russia's Strategic Pivot to the East", *Security Index: A Russian Journal on International Security*, 20:3-4, 2014, p.115.

<sup>311</sup> Xuefeng Zhang & Melebayev Serdar, "Analysis of Oil and Gas Cooperation between China and Russia in the Belt and Road", *SHS Web of Conference* 39, 2017, p.5.

<sup>312</sup> Xuefeng Zhang & Melebayev Serdar, "Analysis of Oil and Gas Cooperation between China and Russia in the Belt and Road", *SHS Web of Conference* 39, 2017, p.6.

In 2009, two countries signed a “loans-for-oil” agreement and in 2010 ESPO pipeline was commissioned<sup>313</sup> which aimed to transport Russian oil directly to China. Along with this, in 2013 two countries has announced their intention to increase the volume of the oil export so that oil supplies have started to increase averagely 1500 million tons year by year and in 2018 the total volume of oil export reached to 3000 tons.<sup>314</sup> However, Chinese companies have remained modest in terms of investments in the upstream oil sector of Russia. CNPC has a small share in Rosneft since 2006 and although there were discussions to increase the shares of CNPC in Rosneft or its subsidiaries there were no closed deals on this issue.<sup>315</sup>

Regarding natural gas trade, Russia initiated the construction of a gas pipeline stretching from its territory to China to increase the gas trade volumes with China as well as to gain manoeuvre in its trade with Europe. In 2014 during the visit of Putin to Shanghai, gas contract was signed with a volume of 38 bcm of gas annually until 2030 through the Power of Siberia Pipeline.<sup>316</sup> The gas to be exported will be produced from undeveloped eastern fields of Russia. This deal was important for Russia since after the imposition of the sanctions, Russia had to prove that the country is not solely dependent on the European market and can maintain its energy exports in alternative markets. Therefore, during the

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<sup>313</sup> Xuefeng Zhang & Melebayev Serdar, “Analysis of Oil and Gas Cooperation between China and Russia in the Belt and Road”, *SHS Web of Conference* 39, 2017, p.5.

<sup>314</sup> Tom Roseth, “Russia’s Energy Relations with China: Passing the Strategic Threshold?”, *Eurasian Geography and Economics*, 2017, p.16.

<sup>315</sup> Heli Simola & Laura Solanko, “Overview of Russia’s Oil and Gas Sector”, *BOFIT Policy Brief*, 2017, p.26.

<sup>316</sup> Alexander Gabuev, “Friends with Benefits? Russian-Chinese Relations After the Ukraine Crisis”, *Carnegie Moscow Center*, June 2016, p.11.

negotiations Russia made significant sacrifices in price terms so that later Putin said “The Chinese drank quite a bit of our blood” after signing of the deal.<sup>317</sup>

In the LNG sector, the LNG production plant on the Yamal Peninsula was initiated by Novatek with a Chinese minority stakeholders. In 2013, CNPC has bought 20% of the stakes of the LNG plant and committed to purchase 3 million tonnes of the gas produced in the plant per year.<sup>318</sup> After the sanctions were imposed, China provided loans for the project through China’s Silk Road Fund. In addition, CNPC and CNOOC have a total of 20% stakes in the Arctic LNG 2 project implemented by Novatek.

Table 10 Shareholder Structure of Novatek LNG Projects<sup>319</sup>

<u>Stakeholders</u>	<u>Country</u>	<u>Interest (%)</u>
<b>Yamal LNG</b>		
Novatek	Russia	50.1%
Total	France	20.0%
CNPC	China	20.0%
Silk Road Fund	China	9.9%
<b>Arctic LNG 2</b>		
Novatek	Russia	60.0%
Total	France	10.0%
CNPC	China	10.0%
CNOOC	China	10.0%
Japan Arctic LNG (JOGMEC/Mitsui)	Japan	10.0%

Source: Authors, based on Novatek public releases

Russia possessing vast amount of energy resources and China with a rapidly growing energy demand are considered to have a unique advantage in terms of energy cooperation. The current problems in energy cooperation are considered

<sup>317</sup> Bo Xu & William M. Reisinger, “Russia’s Energy Diplomacy with China: Personalism and Institutionalism in its Policy-Making Process”, *The Pacific Review*, 2018, p.3.

<sup>318</sup> Heli Simola & Laura Solanko, “Overview of Russia’s Oil and Gas Sector”, *BOFIT Policy Brief*, 2017, p.27.

<sup>319</sup> James Henderson & Vitaly Yermakov, “Russian LNG: Becoming a Global Force”, *The Oxford Institute for Energy Studies*, November 2019, p.14.

to be solved through "One Belt and One Road" strategy which provides an opportunity to the establishment and strengthening of energy infrastructure and cultural cooperation. However, it can be observed that China follows a policy to not rely solely on Russian energy resources by diversifying its supplies with the energy deals realized with the Central Asian states and also other energy supplier countries. The reason behind this strategy is thought to be the Chinese attitude to not draw too much attention of US which is currently imposing strict energy sector targeted sanctions on Russia due to Russia's recent activities in Ukraine. Therefore, while China provides large amount of loans and investments for the Central Asian countries coasting the Caspian Sea, investments in Russia are not as significant as in those countries.

## **CHAPTER 7**

### **CONCLUSION**

The aim of this thesis was to examine the reasons behind the large energy investments of China in the Caspian countries and the effects of these investments in the region. The reasons of Chinese energy investments have been tried to be explained under the framework of complex interdependence theory which was supported by the Chinese “equity approach” in its investments and the approved method of the implementation of the BRI. Accordingly the equity approach of China includes direct ownership of oil and gas resources of other countries instead of just signing purchase agreements in return for important stakes in the energy sectors of the countries. By this way Chinese authorities believe that securization of energy supplies of the country will be achieved in a more successful manner. Also with the announcement of BRI China has tried to implement this equity approach in its energy investments by emphasizing mutual cooperation and establish a win-win model in its energy relations with other countries. This energy cooperation demand of China was welcomed by especially the East Caspian states which need both loans and technical know-how to the development of their energy sectors.

As indicated in the second chapter of the thesis, China’s energy policy is mostly driven by the motivation of securing its energy supplies and also achieving an important part of other countries’s energy sectors. Today, China has become the first largest energy investor country in the world after the adoption of its going-out policy in 1999. The Caspian Region with its vast amount of oil and gas resources has become even more attractive for China after the signing of “The Convention on the legal status of The Caspian Sea” which could pave the way for the development of oil and gas resources from the Caspian basin. Before this

agreement the Caspian Region has also gained the attention of China as the region is not dominated by any international organizations (for example OPEC) or a great power and also the region constitutes an important part of China's BRI route due its geostrategic location.

Among the Caspian countries Kazakhstan and Turkmenistan possess vast amount of oil and gas resources, however their oil and gas fields are underdeveloped comparing to other Caspian countries. Therefore, with the announcement of China's BRI strategy these countries were first to respond and they have become the strategic partners of China in the region. In addition, as these countries experienced a long term of Russia's dominance they welcomed China as a strategic partner since the country ensures to avoid involvement in their internal governance. First, the energy trade with these countries and China has boosted and then these countries received large amount of Chinese loans in exchange for the development of their energy sectors and infrastructure. Chinese energy companies are currently involved in 22 energy companies of Kazakhstan and 10 of which are almost entirely controlled by China. Chinese companies not only invest in oil and gas sectors of Kazakhstan but also in the renewable sector of the country; however when they become investors in oil and gas sectors, in the renewable sector Chinese companies are only involved as contractors. In Turkmenistan only the gas sector involves activities of 37 enterprises with the involvement of Chinese capital and these companies have implemented 57 investment projects worth up to 4.163 billion USD. Therefore, the energy relations between Kazakhstan and Turkmenistan with China can be evaluated under the assumptions of complex interdependence theory since China has secured its energy supplies and improved the security of its BRI route and in return Kazakhstan and Turkmenistan received large amount of loans and technical knowledge for the development of their energy sectors.

As for Azerbaijan, after gaining independence from the Soviet Union this country has built strong energy relations with western companies and most of the

fields in the country are developed with the involvement of western companies. Therefore, Chinese energy policy towards Azerbaijan is rather different than its policy towards East Caspian states. The oil and gas trade between Azerbaijan and China is not significant since most of the oil and gas resources of Azerbaijan are already commissioned to western countries via western initiated major pipelines like BTC, South Caspian Pipeline and the future Southern Gas Corridor concept which involves the expanded South Caspian, TANAP and TAP pipelines. However, as Azerbaijan is still an important country for China's BRI strategy due to its geostrategic location, China is trying to maintain good bilateral relations with Azerbaijan by providing technical knowledge and EPC services for the country's energy sector without becoming investors.

The other littoral state of the Caspian Basin is Iran which holds a different position than other Caspian countries since it has been exposed to US led sanctions targeting its energy sector. The energy trade between China and Iran has been increasing and this increase was even more accelerated after the implementation of JCPOA. Along with this increasing trade China also wanted to invest in Iran's energy sector after the implementation of the JCPOA through a deal with Total to develop the Phase 11 of the South Pars field. However, with the re-imposition of the sanctions in 2018, this deal was cancelled by Total and China did not prefer to continue the deal. As some scholars argue that China avoids to invest in Iran due to the current non-democratical situation in the country, in fact the main reason is that China does not want to contradict with US and other western powers just to gain access to Iranian energy resources. As was discussed in the first chapter, energy policy is one of the most important elements of China's foreign policy however it does not have the power to transform it.

Russia is the the country coasting the Caspian Sea with the imposed US sanctions. After the issuing of the sanctions, Russia has tried to find an alternative to its EU market for the export of its natural resources and therefore

initiated the “Pivot to East” policy. As this policy initially targeted to whole Asian market, with the recent developments it has become a more China oriented policy. The policy aimed to accelerate the development of Russia’s Far East and Eastern Siberian fields by attracting large foreign investments. As it may seem like China with its growing energy demand and Russia with the aim to attract foreign loans have a unique advantage in terms of energy cooperation, Chinese companies remained modest in investing Russia since they did not want to draw attention of the US like in the case of Iran. Other reason why Chinese companies have rather small investments in the Russian energy sector is that China has already guaranteed its energy supplies with the oil and gas purchase agreements signed with other countries like Kazakhstan and Turkmenistan and also with South Eastern Asian countries and also Russia’s unwillingness to the engagement of an another country in its energy production.

It is observed that China aims to build deep and permanent influence on the countries of the region especially in Kazakhstan and Turkmenistan through its investments realized under the Belt and Road Initiative strategy. However, it seems that this strategy would create results which are not overlapping with the interests of the powerful countries located in the region like Russia and Turkey. Russia has already lost most of its influence on the region remained from the Soviet times, however, Turkey with its strong historical and cultural links with the East Caspian states should be more active in the region. Together with its high level of energy demand and energy import dependency, Turkey could benefit more of the Caspian energy resources through building stronger bilateral relations with the countries of the region. In this regard, although Kazak oil has been transported via Baku-Tbilisi-Ceyhan oil pipeline to Turkey’s Ceyhan Terminal, the involvement of Turkmen gas into the Trans Anatolian Pipeline to be transported first to the Turkish Market and then further to European markets has not been realized yet.

Another issue that will directly affect the utilization of the resources in the region is the resolution of conflict regarding the legal status of the Caspian Sea as this conflict hinders the fully exploitation of the resources in the region. Even though the results of the Convention signed in 2018 can not be observed in the meantime, it is thought that the implementation of the agreement is still dependent on the cooperation of the coasting countries as they still have the right to intervene in the oil and gas activities in the region pursuant to the article on the environmental standards. Therefore, in order to fully benefit from the Caspian energy resources and balance the influence of China especially on the East Caspian states, Turkey and Russia can develop a common policy to protect their own interests in the region.

As for China, all the Caspian countries with their geostrategic locations hold a significant place in its BRI strategy which aims to connect Asia with Africa and Europe by land and maritime network. Therefore, Chinese policy towards all the Caspian states is to maintain good bilateral relations in a mutual cooperation manner. On the other hand, China's access to Caspian energy resources seems most likely to be realized through its investments in Kazakhstan and Turkmenistan rather than the other Caspian countries. As the fully exploitation of the Caspian offshore resources is still dependent on the resolution of the conflict on the legal status of the Caspian Sea, the effects of the Convention signed in 2018 should be further analyzed in other studies.

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## APPENDICES

### A. CURRICULUM VITAE

1. **Family name** : ŞENOL
2. **First name** : MERVE
3. **Date of birth** : 28/10/1991
4. **Nationality** : TURKISH / DUTCH
5. **Education** :

Institution [ Date from - Date to ]	Degree(s) or Diploma(s) obtained:
2017 - Present	Masters of Science / M.S. Eurasian Studies Middle East Technical University
2009 – January 2014	Bachelor’s Degree/B.S. International Relations TOBB University of Economics and Technology
2005 – 2009	High School Diploma Kırkkonaklar Anatolian High School Ankara/TURKEY

6. **Language skills:** Indicate competence on a scale of 1 to 5 (1 - excellent; 5 - basic)

Language	Reading	Speaking	Writing
ENGLISH	1	1	1
TURKISH	1	1	1
RUSSIAN	4	4	4

7. **Other skills:** Good command of Microsoft Office™ tools
8. **Present position:**

Energy and Natural Resources Expert - Ministry of Energy and Natural Resources / TURKEY

9. **Years within the firm:** From 5/2015 to Present

10. **Key qualifications:**

- Negotiated intergovernmental agreements and host government agreements for transnational pipelines for 4 years
- Coordinating the implementation of the transnational pipeline projects and also other projects related to the energy sector in Turkey
- Contributing to the preparation process of international energy institutions’ annual or sectorial reports on the Turkish energy sector
- Having knowledge on the political, economic and social dynamics of the Eurasian countries

## B. TURKISH SUMMARY / TÜRKÇE ÖZET

Dünyanın en hızlı büyüyen ülkelerinden biri olmasının bir sonucu olarak Çin'in enerji talebindeki dikkat çekici artış, dünya gündeminde önemli bir yere sahiptir. Çin, büyüyen enerji talebini karşılamak amacıyla enerji politikasında arz güvenliğini bir öncelik olarak belirlemiş ve enerji politikasını bu çerçevede şekillendirmeye başlamıştır. Enerji kaynaklarının güvenliğinin sağlanması, hem enerji kaynaklarına sürdürülebilir erişimi hem de bu kaynakların güvenli ve kesintisiz taşınması için gerekli altyapının kurulmasını kapsamaktadır. Dolayısıyla, zengin enerji kaynakları ile öne çıkan Hazar Bölgesi, belirtilen bu enerji politikası önceliklerini gerçekleştirmek için Çin'in enerji politikası gündeminde kritik bir öneme sahiptir.

Sovyetler Birliği'nin dağılmasından ve Hazar Denizi'ne kıyısı olan üç ülkenin bağımsızlıklarını ilan etmelerinden sonra, Hazar bölgesi dünyanın büyük güçleri arasında bir rekabete sahne olmuştur. Herhangi bir büyük güç veya bir uluslararası kuruluş tarafından kontrol edilmeyen bu bölge, enerji arz çeşitliliğini hedefleyen büyük güçler için cazip bir bölge haline gelmiş ve bölge üzerindeki hâkimiyeti sağlamaya yönelik rekabet literatürde “Yeni Büyük Oyun” (The New Great Game) olarak adlandırılmıştır. Ancak bölgede yer alan zengin enerji sahalarının geliştirilmesi, Hazar Denizi'nin statüsüne ilişkin uzun yıllardır devam eden anlaşmazlıklar nedeniyle beklenen düzeyde gerçekleştirilememiştir. Hazar Denizi'nin ihtilafli statüsünün çözümüne yönelik anlaşmanın 2018 yılında imzalanması ile birlikte bölgenin Çin'in enerji politikasında daha da önemli hale geleceği değerlendirilmektedir.

Bu çalışma ile Çin'in enerji stratejisi kapsamında bölge ile neden ilgilendiği ve Çin'in enerji politikasının bölge üzerindeki etkilerinin neler olduğu sorularının yanıtlanması amaçlanmıştır. Bu kapsamda, Çin'in bölgedeki enerji yatırımları analiz edilerek bu soruların cevapları verilmeye çalışılmıştır. Bu sorulara cevap

verilirken ülkelerin enerji sektörlerinin tarihsel arka planını ve mevcut durumunu yansıtmak amacıyla devletlerin istatistik ve verilerinden, uluslararası kuruluşların raporlarından ve özellikle bu alandaki akademik çalışmalardan yararlanılmıştır.

Enerji çalışmaları, enerji politikalarının genel olarak enerji arz güvenliğine göre şekillendiği varsayımına dayanarak enerji güvenliği kavramının tanımına ve enerji güvenliğinin nasıl sağlanabileceğine yönelik çözümlere odaklanmaktadır. Bu kapsamda, son yıllarda yapılan araştırmalar, enerji güvenliğinin 1970'ler öncesinde askeri güç vasıtasıyla sağlandığını vurgularken 1970'lerden sonra enerji arzının karşılıklı işbirliği sayesinde güvence altına alınabileceğini vurgulamışlardır. Diğer yandan, enerji güvenliğinin sağlanmasında geçmişte tek aktör olarak devlet belirlenmişken, son yıllarda devletlerin yanı sıra uluslararası kuruluşlar ve uluslararası şirketler de önemli aktörler olarak ortaya çıkmaktadır. Uluslararası enerji politığının devletler, uluslararası şirketler ve uluslararası kuruluşlar vasıtasıyla belirlendiğini savunan görüşlere karşın, artık büyüyen ekonomilerin uluslararası enerji politığına yön verdiğine ilişkin görüşler de bulunmaktadır. Buna göre, uluslararası piyasalardaki büyüme ve Çin gibi büyük ithalatçı ülkelerin ortaya çıkması uluslararası kuruluşların yönetimini zorlamaya başlamıştır. Dolayısıyla, enerji ilişkileri artık Çin ve Hindistan gibi büyüyen ekonomilerin enerji taleplerine göre şekillenmeye başlayacaktır.

Çin'in enerji stratejisine ilişkin yapılan çalışmalar ise yine bu görüşlerden esinlenerek Çin'in enerji stratejisini tamamen arz güvenliği endişesini giderecek şekilde geliştirdiğini savunmaktadır. Bu çalışmalarda özellikle devlete bağlı olarak faaliyet gösteren Çin enerji şirketlerinin diğer ülkelerdeki faaliyetlerine ve yatırımlarına dikkat çekilmekte olup, bu yatırımlar vasıtasıyla Çin'in hem enerji arz kaynaklarını hem de enerji nakil hatlarını güvence altına aldığına dair yorumlar mevcuttur. Ancak bu çalışmada ortaya koyulduğu üzere Çin'in arz güvenliği endişesini bir kenara bırakarak enerji politikasına ilişkin kararlarını dış politika hedeflerine göre belirlediği değerlendirilmektedir. Bu kapsamda, Çin'in

Hazar bölgesine yönelik enerji politikası bu değerlendirmeyi en doğru şekilde yansıtmaktadır. Enerji kaynaklarının zenginliğine bakılmaksızın, Çin, Hazar Bölgesi'nde batılı güçlerle işbirliği içerisinde hareket eden Azerbaycan ve enerji hedefli yaptırımlara maruz kalan Rusya ve İran'la enerji ilişkilerini sınırlı bir seviyede tutarken, belirgin bir politik rekabetin yaşanmadığı Kazakistan ve Türkmenistan ile stratejik ortaklık çerçevesinde hareket etmektedir.

Bu çalışma yedi bölümden oluşmaktadır. Birinci bölümde tezin kapsamı ve amacı, literatür taraması ve ayrıca tezin argümanları, araştırma yöntemleri ve organizasyonu açıklanmaktadır. İkinci bölümde, fosil yakıtlar ve fosil olmayan yakıtlar ile ilgili politika önceliklerine ayrı ayrı odaklanılarak Çin'in son yıllardaki enerji politikası öncelikleri belirlenmeye çalışılmıştır. Ardından, Şanghay İşbirliği Teşkilatı (ŞİÖ) çerçevesinde ülkenin Hazar Bölgesi'ne yönelik enerji politikası ve Çin'in iddialı Kuşak ve Yol Girişimi kapsamında atılan adımlara odaklanılmıştır. Üçüncü bölümde, Çin şirketlerinin gerçekleştirdiği büyük miktardaki yatırımlar çerçevesinde Çin ile Kazakistan ve Türkmenistan'dan oluşan Doğu Hazar devletleri arasındaki enerji ilişkileri incelenmiştir. Ancak bu bölümde bu ülkelerin daha çok petrol ve doğal gaz potansiyeline sahip olmaları nedeniyle bu sektörlere odaklanılarak, yenilenebilir enerji sektörlerine ilişkin kısa bilgiler verilmiştir. Dördüncü bölümde Azerbaycan'ın enerji sektörü ile ilgili bilgiler verilmiş ve Çin'in Azerbaycan'daki enerji yatırımları değerlendirilmiştir. Beşinci bölümde, Çinli şirketlerin İran'daki yatırımları çerçevesinde İran'ın enerji sektörü ve politikaları ile Çin'in İran ile enerji ilişkilerine odaklanılmıştır. Aynı şekilde altıncı bölümde ise Rusya'nın enerji sektörü hakkında bilgiler verilmiş ve Çin ile Rusya'nın enerji alanındaki rekabet ve ilişkileri değerlendirilmiştir. Son olarak, yedinci bölümde, Çin'in Hazar bölgesi ülkelerinin enerji sektörleri ile yakından ilgilenmesinin nedenleri ve bu ilginin etkilerine ilişkin genel değerlendirmelere yer verilmiştir.

Çin'in Hazar Bölgesi ülkelerine yönelik enerji politikasını ülkeler bazında ayrı ayrı incelemeyi önce Çin'in enerji stratejisindeki öncelik alanlarının

incelenmesinde fayda görülmektedir. Günümüzde Çin, birçok sektöründe gerçekleşen yüksek sanayileşme nedeniyle dünyanın en çok enerji tüketen ülkesi haline gelmiştir. Yüksek enerji talebini ise, iç üretimini artırarak ve enerji üreticisi olan ülkelerle ikili ilişkilerini geliştirerek ve bu ülkelerde yatırımlarını artırarak karşılamaya çalışmaktadır. Çin, 1999 yılında kabul edilen dışa açılım politikası ile birlikte enerji alanında dünyanın en büyük yatırımcı ülkesi haline gelmiştir. Enerji alanındaki yatırımların büyük bir kısmı devlet bankaları olan CDB (China Development Bank) ve CHEXIM (China Export and Import Bank) tarafından finanse edilmektedir. Diğer ülkelerdeki yatırımların gerçekleştirilmesi ise çoğunlukla devlet enerji şirketleri olan Çin Ulusal Petrol Şirketi (CNPC), Sinopec ve Çin Ulusal Deniz Petrol Şirketi (CNOOC) tarafından gerçekleştirilmektedir. Yatırımların yanı sıra, dünyanın en çok enerji ithalatı yapan ülkesi olarak Çin, petrol ithalatının büyük bir kısmını Orta Doğu ve Orta Asya ülkelerinden; doğal gaz ithalatının büyük bir kısmını ise Orta Asya, Rusya'dan karşılamaktadır.

Diğer yandan, 13'ncü Beş Yıllık Kalkınma Planı'na (2016-2020) göre Çin Hükümeti enerji politikasının temel yapıtaşı olarak enerji talebi ve enerji arz altyapısının geliştirilmesi amacıyla ikili alternatif (dual alternative) kavramını ortaya atmıştır. İkili alternatif, enerji tüketiminde fosil kaynakların yerine fosil olmayan kaynaklara geçişi ve kömürden enerji üretimi yerine doğal gazdan enerji üretimine geçişi ifade etmektedir. Her ne kadar enerji tüketiminde doğal gaza geçilmesi ülkenin enerji ithalat bağımlılığını artıracak bir hamle olsa da, ülkede artan hava kirliliğinin toplumun yaşam standartlarını olumsuz yönde etkilemeye başlaması nedeniyle doğru bir karar olarak görülmektedir. 13'ncü Beş Yıllık Kalkınma Planı'nın odaklandığı bir diğer husus ise enerji sektörünün serbestleştirilmesidir. Günümüzde Çin'in enerji sektörü tamamen devlet kontrolünde olup, enerji sektöründeki faaliyetler büyük devlet şirketleri tarafından gerçekleştirilmektedir. Enerji sektörünün serbestleştirilmesi hususunun gündeme alınmasıyla, enerji sektöründe faaliyet gösteren aktörlerin

artırılması ve sektörde rekabetin sağlanmasıyla sektörün geliştirilmesinin hedeflenmiştir.

Çin'in enerji politikasının temel motivasyonu tezin ikinci bölümünde belirtildiği gibi enerji arzını güvence altına almak ve aynı zamanda enerji kaynakları bakımından zengin olan ülkelerin enerji sektörlerinde aktif bir role sahip olmak şeklinde açıklanabilir. Buna göre benimsenmiş olan öz sermaye yaklaşımı (equity approach) ile enerji kaynaklarının anlaşmalar yoluyla belirli bir miktarının satın alınması dışında, bölgedeki ulusal enerji şirketlerindeki hisselerin satın alınmasıyla enerji kaynakları üzerinde doğrudan mülkiyet hakkına sahip olunması sağlanmıştır. Çin'in anlaşmalarla belirli bir miktarda enerji kaynağının satın alınması yerine enerji kaynakları üzerinde mülkiyet hakkına sahip olunması politikası, enerji arz güvenliğinin daha güvenilir bir şekilde sağlanmasını ve oluşabilecek fiyat dalgalanmalarına karşı ülkenin ithalatının korunmasını sağlamıştır. Bu politikanın uygulanmasını sağlayan Çin'in meşhur Kuşak ve Yol Girişimi ile karşılıklı işbirliği ve kazan kazan modeline vurgu yapılması ile de Çin açısından daha avantajlı sonuçlar doğmuştur. Çin'in enerji alanında ortaya atmış olduğu işbirliği modeli, kendi enerji sektörlerinin geliştirilmesi için hem krediye hem de teknik bilgilere ihtiyaç duyan Doğu Hazar devletleri tarafından memnuniyetle karşılanmıştır.

Hazar Bölgesi, Çin'in Kuşak ve Yol Girişimi güzergahının önemli bir bölümünü oluşturması nedeniyle stratejik konumu haizdir. Diğer yandan büyük miktarlarda petrol ve doğal gaz rezervlerine sahip olan bölge, Hazar Denizi'nin Hukuki Statüsüne ilişkin Sözleşme'nin imzalanmasından sonra Çin için daha cazip bir hale gelmiştir. Yüksek enerji talebini, enerji güzergahını ve kaynak ülkelerini çeşitlendirme yoluyla karşılamaya çalışan Çin için Hazar Bölgesi önemli bir yere sahiptir. Çin öncülüğünde 1996 yılında kurulmuş olan Şangay İşbirliği Örgütü, Hazar ülkeleriyle ilişkilerin geliştirilmesi için bir temel oluşturmuştur. Ancak, bölge ülkelerinden özellikle Doğu Hazar ülkeleri ile ilişkilerin üst düzeye

taşınması 2013 yılında açıklanan Kuşak ve Yol Girişimi stratejisi ile gerçekleşmiştir.

Hazar ülkeleri arasında Kazakistan ve Türkmenistan büyük miktarda petrol ve gaz kaynaklarına sahiptir, ancak petrol ve gaz sahaları diğer Hazar ülkelerine kıyasla az gelişmiş durumdadır. Sovyetler Birliği'nin dağılmasından sonra gelişmemiş ve sadece tek bir ürüne dayalı ekonomileri olan bu iki ülke, bağımsızlık ile birlikte gelen geçiş sürecinde ekonomilerini güçlendirmek adına yabancı yatırımlara ihtiyaç duymuştur. Bu nedenle, Çin'in Kuşak ve Yol Girişimi stratejisinin açıklanmasıyla birlikte, Çin'in işbirliği çağrısına ilk yanıt veren ülkeler Kazakistan ve Türkmenistan olmuşlardır. Çin Başkanı Xi Jinping'in 2013 yılında bölgeye gerçekleştirdiği ilk ziyaret ikili ilişkilerde ulaşım, enerji, iletişim ve tarım alanlarında yeni bir dönemi açmış ve bu ülkeler Çin'in bölgedeki stratejik ortakları haline gelmişlerdir. Buna ek olarak, bu ülkeler Rusya'nın uzun süreli hakimiyetini deneyimlediklerinden, batılı devletlerin aksine yatırımlar ve kredilerin verilmesi için herhangi bir koşul öne sürmeksizin iç politik düzenlerine karışmayacağını garanti eden Çin'i stratejik bir ortak olarak memnuniyetle karşılamışlardır.

Kuşak ve Yol Girişimi'nin açıklanmasından sonra ilk olarak iki ülke ve Çin arasındaki ticaret hacmi dikkat çekici seviyede artış göstermiş, daha sonrasında ise bu ülkeler enerji üretimlerinin ve altyapılarının geliştirilmesi karşılığında, Çinli şirketlerin, devlet bünyesinde faaliyet gösteren enerji şirketlerinde pay sahibi olmalarına izin vermişlerdir. Günümüzde, Kazakistan'da faaliyet gösteren 22 enerji şirketinde Çinli şirketlerin hisseleri bulunmakta ve bunlardan 10 tanesi neredeyse tamamen Çin şirketlerine aittir. Çin enerji şirketi CNPC ilk olarak 1997 yılında Kazakistan'ın devlet bünyesinde faaliyet gösteren enerji şirketi olan AktobeMunaiGaz'ın hisselerinin %60'ını satın alarak önemli petrol ve doğal gaz sahalarının üretim lisanslarını elde etmiş ve 2005 yılında ise şirketin kalan %40 hissesini de satın almıştır. Diğer yandan, 2005 yılında ülkenin en büyük ikinci petrol şirketi olan PetroKazakhstan'ın tamamını satın almış ancak Kazak

hükümeti şirketin hisselerinin üçte birini tekrar satın almıştır. Çin şirketlerinin Hazar Denizi'ndeki enerji faaliyetleri Kazakistan'a ait olan alanda 2005 yılında imzalanan anlaşma ile başlamıştır. Çin şirketleri Kazakistan'da sadece petrol ve doğal gaz sektörlerinde değil, yenilenebilir enerji sektöründe de faaliyet göstermektedirler. Ancak bu şirketler göreceli olarak potansiyeli daha yüksek olan petrol ve doğal gaz sektörlerinde yatırımcı olarak faaliyet gösterirken, yenilenebilir enerji sektöründe sadece mühendislik ve danışmanlık hizmetleri sağlamaktadırlar. Türkmenistan'da ise sadece doğal gaz sektöründe faaliyet gösteren 37 şirket bünyesinde Çinli şirketlerin hisseleri bulunmakta ve bu şirketler toplamda 4.1 milyar ABD Doları değerinde 57 proje gerçekleştirmişlerdir. Çin'in bölgede gerçekleştirmiş olduğu en büyük enerji projelerinden biri kapasitesi günümüzde 55 milyar metreküp olan Türkmenistan-Çin doğal gaz boru hattının inşasıdır. Buna ek olarak, Türkmenistan'ın en önemli doğal gaz sahalarının yer aldığı Bagtyyarlık bölgesindeki sahalarda Çin enerji şirketlerinin üretim lisansları bulunmaktadır. Dolayısıyla, hem Kazakistan hem de Türkmenistan'ın petrol ve doğal gaz sektörlerinde en çok faaliyet gösteren ve bu sektörlerle en çok yön veren ülke Çin olarak karşımıza çıkmaktadır.

Bu bilgiler doğrultusunda Çin ile Doğu Hazar ülkeleri arasındaki enerji ilişkilerini Keohan ve Nye tarafından literatüre kazandırılmış olan karşılıklı bağımlılık teorisi çerçevesinde değerlendirmek mümkündür. Karşılıklı bağımlılık teorisi ülkeler ya da farklı ülkelerde bulunan aktörler arasındaki her zaman simetrik şekilde oluşma zorunluluğu bulunmayan karşılıklı etkileşimleri ifade etmektedir. Söz konusu teoriye göre dünya politiği çatışma ve ülkelerin çatışan çıkarlarının yanı sıra, işbirliğine göre de şekillenmektedir. Çin'in Doğu Hazar ülkelerine yönelik enerji yatırımları ile kendi enerji arz güvenliğine ve Kuşak ve Yol Girişimi güzergahının güvenliğinin artırılmasına katkı sağladığı görülmektedir. Diğer yandan, Çin'in bölgeye yönelik gerçekleştirdiği yatırımlar ve sağladığı teknik bilgi ve deneyimler sayesinde Kazakistan ve Türkmenistan'ın enerji üretimlerini ve ticaretlerini önemli ölçüde arttırdıkları da gözlemlenmektedir.

Bu durum, Çin'in Azerbaycan'la olan enerji ilişkilerinde geçerli değildir. Azerbaycan'ın batılı şirketlerle Hazar Denizi'nde yer alan Azeri-Çıralı-Güneşli petrol sahalarında yer alan enerji kaynaklarının geliştirilmesi amacıyla 1994 yılında imzaladığı “Yüzyılın Anlaşması” olarak nitelendirilen anlaşma sonrasında Azerbaycan enerji sektöründe daha çok Avrupalı şirketlerin etkileri görülmeye başlamıştır. Halihazırda Azerbaycan'ın bu sahalardan gerçekleşen petrol üretimi yine aynı batılı şirketler ve Azerbaycan enerji şirketi SOCAR arasında kurulmuş olan konsorsiyum tarafından inşa edilen Bakü-Tiflis Ceyhan Petrol Boru Hattı vasıtasıyla Türkiye'de yer alan Ceyhan Terminali'ne taşınmakta ve buradan tankerlerle dünya pazarlarında gönderilmektedir. Azerbaycan'ın Hazar Denizi'nde yer alan en önemli doğal gaz sahası olarak kabul edilen Şah Deniz sahasının geliştirilmesi de batılı şirketler tarafından gerçekleştirilmektedir. Şah Deniz sahasının birinci fazından üretilen doğal gaz Güney Kafkasya (bir diğer ismiyle Bakü-Tiflis-Erzurum) Doğal Gaz Boru Hattı ile Türkiye'ye taşınmaktadır. Diğer yandan, Şah Deniz sahasının ikinci fazından üretilen doğal gazın ise genişletilmiş olan Güney Kafkasya Doğal Gaz Boru Hattı, Trans Anadolu Boru Hattı (TANAP) ve Trans Adriyatik Boru Hattı'ndan (TAP) oluşan Güney Gaz Koridoru ile önce Türkiye'ye daha sonra ise Avrupa pazarlarına taşınması planlanmaktadır. Dolayısıyla Çin, Azerbaycan'da petrol ve doğal gaz üretimi alanında yatırım gerçekleştirmemiş ve bu ülkeyle olan enerji ticaretini belirli bir seviyede tutmuştur.

Azerbaycan, Çin'in Kuşak ve Yol Girişimi kapsamında belirlenen 6 ekonomik koridordan biri olan Çin-Orta Asya-Batı Asya ekonomik koridoru üzerinde yer almasından dolayı jeostratejik bir konuma sahip olup Çinli yetkililer tarafından bu ülkeyle ikili ilişkilerin iyi bir seviyede tutulması önem arz etmektedir. Bu kapsamda, her ne kadar Çin enerji şirketleri Azerbaycan'ın petrol ve doğal gaz sektörlerinde yatırımcı olarak yer almasalar da, oldukça deneyimli oldukları yenilenebilir enerji sektöründe mühendislik ve danışmanlık hizmetleri sağlayarak bu sektörün gelişmesine katkıda bulunmaktadır.

Hazar Bölgesi'nde yer alan ve önemli enerji kaynaklarına sahip olan bir diğer devlet ise, ABD öncülüğünde başlatılan, enerji sektörünü hedefleyen yaptırımlara maruz kalan İran'dır. İran'a uygulanan yaptırımlar ilk olarak 2012 yılında uygulanmaya başlanmış olup, 2016 yılında kabul edilen Kapsamlı Ortak Eylem Planı (Nükleer Anlaşması) ile kaldırılmış ve sonrasında 2018 yılında ABD'nin bu anlaşmadan çekilmesiyle tekrar uygulanmaya başlamıştır. İran'ın petrol ve doğal gaz üretimi ve aynı zamanda ticareti söz konusu yaptırımların uygulanması ile önemli ölçüde azalmış, yaptırımların kaldırılması ile ise artmıştır. Yaptırımların kaldırıldığı süreçte, ilk defa yabancı şirketlerin İran petrol ve doğal gaz üretiminde yer almalarına izin veren İran Petrol Sözleşmesi (IPC) modelinin kabul edilmesiyle birlikte, ülke, yabancı yatırımcılar için cazip bir hale gelmiştir. Bu dönemde Güney Pars sahasının 11.fazının geliştirilmesi için Fransız Total ve Çinli CNPC arasında bir anlaşma imzalanmış, ancak yaptırımların tekrar uygulanmaya başlaması ile birlikte bu anlaşma feshedilmiştir. Yaptırımların tekrar uygulanması ile birlikte, petrol ve doğal gaz sahalarının geliştirilmesi için modern teknolojilere ihtiyaç duyan İran'ın enerji üretimi ve ticareti tekrar düşüş eğilimi göstermeye başlamıştır.

Her ne kadar bazı akademik çalışmalar, Çin'in ülkedeki mevcut demokratik olmayan yönetim nedeniyle İran ile enerji ilişkilerini geliştirmeye yönelmediğini savunsalar da, bunun asıl nedeninin Çin'in batılı güçlerle ters düşmek istememesinin olduğu değerlendirilmektedir. Bu noktada, aslında Çin'in enerji ihtiyaçlarını karşılamaktan ziyade dış politika hedeflerine öncelik verdiği ortaya çıkmaktadır.

Hazar Bölgesi'nin enerji alanında yaptırımlara maruz kalan bir diğer ülkesi ise Rusya'dır. Halihazırda, Rusya'nın Batı Sibirya bölgesinden üretilen petrol ve doğal gaz büyük ölçüde Avrupa ülkelerine ihraç edilmektedir. ABD öncülüğünde yaptırımların uygulanmaya başlamasıyla birlikte Rusya, Avrupa pazarına alternatif bir pazar bulmak ve Doğu Sibirya'da bulunan enerji sahalarının geliştirilmesi için "Asya Ekseni" (Pivot to Asia) politikasını ortaya

atmıştır. Bu politika ile başlangıçta tüm Asya pazarı hedeflenmiş olmasına rağmen son gelişmelerle birlikte bu politika daha çok Çin odaklı bir politika haline gelmiştir. İki ülke arasındaki enerji ilişkilerinde, 2010 yılında ESPO (East Siberia Pacific Ocean) Petrol Boru Hattının inşasına ve bu hat vasıtasıyla Rus petrolünün Çin'e taşınmasına ilişkin imzalanan anlaşma ve 2014 yılında Sibirya Gücü (Power of Siberia) Doğal Gaz Boru Hattının inşasına ve bu hat vasıtasıyla yılda 38 milyar metreküp Rus gazının Çin'e taşınmasına ilişkin imzalanan anlaşma, en önemli enerji yatırımları olarak görülmektedir. Her ne kadar Rusya'nın alternatif pazar bulma girişimi ve Çin'in kaydadeğer ölçüde büyüyen enerji talebi birbiriyle örtüşen çıkarlar gibi görülse de, iki ülke arasındaki enerji ilişkileri beklenen düzeyde gerçekleşmemiştir. Bunda, Çin'in İran'da olduğu gibi yaptırımlar nedeniyle batılı ülkelerin dikkatini çekmeme kaygısı ön plana çıkmış olup, diğer yandan Çin, enerji arzının tamamının Rusya'dan karşılanması yerine Doğu Hazar ülkeleri ve Güneydoğu Asya ülkeleri ile de imzaladığı petrol ve doğal gaz alım anlaşmaları ile enerji kaynak ülkelerini çeşitlendirme yönünde girişimlere başvurmuştur.

Görüldüğü üzere Çin, Hazar kaynaklarına erişim sağlamak için daha çok Doğu Hazar ülkeleri ile işbirliğine yönelmiş ve siyasi rekabet ve çatışma ihtimali doğuracak Azerbaycan, İran ve Rusya gibi ülkelerle enerji ilişkilerini sınırlı tutmuştur. Dışa açılım politikası ve Kuşak ve Yol Girişimi stratejisi ile enerji yatırımlarını önemli ölçüde artıran Çin enerji şirketleri, Kazakistan ve Türkmenistan enerji sektörlerinde önemli bir konuma sahiptirler. Bu ülkeler, kendi başlarına petrol ve doğal gaz alanlarının geliştirilmesini sağlayamayacaklarından ve enerji üretimlerini bu seviyeye çıkaramayacaklarından, ihtiyaçları olan yabancı yatırımları ve kredileri Çin'in herhangi bir koşul öne sürmeden sunması nedeniyle bölgede Çin'in stratejik ortakları haline gelmişlerdir.

Çin'in Kuşak ve Yol Girişimi stratejisi kapsamında gerçekleştirdiği yatırımlarla özellikle Kazakistan ve Türkmenistan olmak üzere bölge ülkeleri üzerinde derin

ve kalıcı etkiler yaratmayı hedeflediği görülmektedir. Ancak bu strateji, Rusya ve Türkiye gibi bölgede bulunan diğer güçlü ülkelerin çıkarlarıyla örtüşmeyen sonuçlar yaratmaktadır. Rusya, Sovyet döneminden kalan bölgedeki etkisinin çoğunu zaten kaybetmiştir, ancak Türkiye, Doğu Hazar devletleriyle güçlü tarihsel ve kültürel bağları ile bölgede daha aktif olmayı hedeflemektedir. Türkiye, yüksek seviyedeki enerji talebi ve enerji ithalatına bağımlılığıyla birlikte, bölge ülkeleriyle daha güçlü ikili ilişkiler kurarak Hazar enerji kaynaklarından daha fazla faydalanma hedefini taşımaktadır. Bu bağlamda, halihazırda Kazak petrolü Bakü-Tiflis-Ceyhan Petrol Boru Hattı vasıtasıyla Türkiye'nin Ceyhan Terminaline taşınmasına rağmen, Türkmen gazının önce Türkiye Pazarına ve daha sonra Avrupa pazarlarına taşınmak üzere Trans Anadolu Boru Hattı'na dahil edilmesi henüz gerçekleştirilememiştir.

Bölgedeki enerji kaynaklarının kullanımını doğrudan etkileyecek bir diğer konu ise, bölgedeki petrol ve doğal gaz sahalarının geliştirilmesine ve enerji nakil hatlarının inşa edilememesine neden olan Hazar Denizi'nin yasal statüsüne ilişkin uyuşmazlığın çözülmesidir. Buna göre, Rusya ve İran Hazar Denizi'nin bir iç deniz olduğunu öne sürerek buradaki kaynakların tüm kıyı devletleri tarafından ortak olarak yönetilmesi gerektiğini savunurken; Azerbaycan, Kazakistan ve Türkmenistan Hazar Denizi'nin bir deniz statüsünde olduğunu ve her devletin kendi ulusal yetki alanlarında kendi yönetim haklarının olduğunu savunmuşlardır. Statü sorununun çözülmesi amacıyla 2018 yılında imzalanan Sözleşme'ye göre tüm kıyı ülkeleri bölgedeki kaynakların ve inşa edilecek olan altyapının ülkelerin yetki alanlarına göre kendi inisiyatifinde olduğunu kabul etmişlerdir. Her ne kadar 2018 yılında imzalanan Sözleşme'nin doğrudan sonuçları şu an için gözlemlenemese de, sözleşmenin çevre standartlarına ilişkin maddesi gereğince bölge ülkelerinin tamamının halen petrol ve doğal gaz sahalarının geliştirilmesi ve bu kaynakların taşınmasına yönelik altyapının oluşturulmasına ilişkin müdahale hakkının bulunduğu değerlendirilmektedir. Dolayısıyla, bu anlaşmanın öngörüldüğü şekilde uygulanması için anlaşmaya taraf olan bütün kıyı devletlerinin işbirliği çerçevesinde hareket etmeleri

gerekmektedir. Bu doğrultuda, Hazar Bölgesi'ndeki enerji kaynaklarından yararlanılması ve Çin'in özellikle Doğu Hazar devletleri üzerindeki etkisini dengelemek için Türkiye ve Rusya'nın bölgedeki çıkarlarını koruyacak şekilde ortak bir politika geliştirmelerinin faydalı olacağı düşünülmektedir.

Diğer yandan, stratejik konumları nedeniyle tüm Hazar devletleri, Asya, Afrika ve Avrupa kıtalarını kara ve deniz yolları ile birbirine bağlamayı hedefleyen Kuşak ve Yol Girişimi stratejisinde önemli bir yere sahiptir. Bu nedenle, Çin'in tüm Hazar devletlerine yönelik politikası, karşılıklı işbirliği içinde iyi ikili ilişkiler sürdürmektir. Öte yandan, Çin'in Hazar enerji kaynaklarına erişiminin, diğer Hazar ülkelerinden ziyade Kazakistan ve Türkmenistan'da gerçekleştirdiği yatırımlar vasıtasıyla gerçekleşeceği değerlendirilmektedir.

Son olarak, Hazar Bölgesi'nde yer alan enerji kaynaklarının dünya ticaretindeki yerinin artırılması hâlâ Hazar Denizi'nin yasal statüsüne ilişkin ihtilafın çözümüne bağlı olduğundan, 2018'de imzalanan Sözleşmenin etkilerinin diğer çalışmalarda daha ayrıntılı olarak incelenmesinde fayda görülmektedir.

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