

EVOLUTION OF IRANIAN ENERGY SECTOR
BEFORE AND AFTER THE NUCLEAR DEAL OF 2015

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ABSTRACT

EVOLUTION OF IRANIAN ENERGY SECTOR BEFORE AND AFTER THE NUCLEAR DEAL OF 2015

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This thesis examines development of energy sector and policy in Iran, which holds fourth largest oil reserve and second largest natural gas reserves of the world, from discovery of oil in the country in 1908 to the present. The study first provides a historical background of energy resources in the country. It mainly focuses on the discovery of reserves and use of oil, natural gas, nuclear and other resources. The thesis then analyzes Iran's energy sector and its policy during the period of nuclear-related sanctions which were imposed mainly by UN, along with US and the European Union. Following the sanction period, it examines the nuclear deal of 2015 between Iran and the US, the UK, France, Russia and China, plus Germany (P5+1). Finally, the study discusses developments in the Iranian energy sector and impacts of the sanction relief as a result of the nuclear deal reached by the West and Iran. Contrary to the opinions of scholars who claim that Iran would regain power in energy with the nuclear deal, this thesis argues that the impact of the deal on energy sector has been limited.

Keywords: Iran, Iranian Energy Policy, Nuclear Deal

ÖZ

NÜKLEER ANLAŞMA ÖNCESİ VE SONRASI İRAN ENERJİ SEKTÖRÜNÜN GELİŞİMİ

Zengin, Dilara

Yüksek Lisans, Ortadoğu Araştırmaları

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Bu tez, dünyanın dördüncü büyük petrol ve ikinci büyük doğal gaz rezervlerine sahip İran'ın enerji politikasının, petrolün ülkede keşfedildiği 1908 tarihinden günümüze kadar olan gelişimini incelemektedir. Çalışma, ilk olarak ülkedeki enerji kaynaklarının tarihsel geçmişine dair bilgi sağlamakta ve esas olarak petrol, doğal gaz, nükleer ve diğer kaynakların keşfi ve kullanımına odaklanmaktadır. Daha sonra başlıca Birleşmiş Milletler, ABD ve Avrupa Birliği tarafından nükleer programına ilişkin olarak uygulanan yaptırımlar süresince İran'daki enerji sektörlerini ve politikasını analiz etmektedir. Yaptırımlar döneminin ardından, 2015 yılında İran ve Birleşmiş Milletler Güvenlik Konseyi'nin 5 daimi üyesi ile Almanya arasında varılan nükleer anlaşma tezde incelenmektedir. Son olarak, çalışmada, İran ile Batı arasında varılan anlaşmayla kaldırılan yaptırımlar sonrası İran enerji sektörü ve politikasındaki gelişmeler ve anlaşmanın etkileri tartışılmaktadır. Kimi çevrelerin nükleer anlaşmayla birlikte İran'ın enerji sektöründeki gücünü yeniden kazanacağı görüşlerinin aksine, bu tez anlaşmanın sektöre etkisinin sınırlı olduğunu savunmaktadır.

Anahtar Kelimeler: İran, İran Enerji Politikası, Nükleer Anlaşma

To my lovely family,
my mother...

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TABLE OF CONTENT

PLAGIARISM	iii
ABSTRACT	iv
ÖZ	v
DEDICATION	vi
ACKNOWLEDGEMENTS	vii
TABLE OF CONTENT	viii
LIST OF TABLES	x
LIST OF FIGURES	xi
LIST OF ABBREVIATIONS	xii
CHAPTER	
1. INTRODUCTION	1
1.1 Scope and objectives	1
1.2 Research question	1
1.3 Literature review	2
1.4 Argument	6
1.5 Organization of thesis	7
2. ENERGY POLICY OF IRAN BEFORE SANCTIONS, 1908-2006	9
2.1 The evolution of Iranian oil industry	11
2.2 The development of Iranian gas sector	27
2.3 The history of Iran’s nuclear program	34
2.4 Conclusion	42
3. IRANIAN ENERGY POLICY UNDER SANCTIONS, 2006-2015	44
3.1 Iran under sanctions	45
3.2 Impacts of sanctions on energy sector	52
3.2.1 Oil	54
3.2.2 Natural gas	58
3.2.3 Electricity and nuclear	61
3.3 Conclusion	63
4. NUCLEAR NEGOTIATIONS AND LIFTING OF SANCTIONS, 2015....	65
4.1 Negotiations between the West and Iran	66

4.2 Joint Comprehensive Plan of Action	69
4.3 Proponent and opponent of JCPOA	73
4.4 Conclusion	77
5. IMPACT OF SANCTION RELIEF ON IRANIAN ENERGY SECTOR ...	78
5.1 Oil industry	80
5.2 Natural gas sector	88
5.3 Power industry	94
5.4 Conclusion	98
6. CONCLUSION	100
REFERENCES	105
APPENDICES	
A. TURKISH SUMMARY/ TÜRKÇE ÖZET	114
B. TEZ FOTOKOPİSİ İZİN FORMU	125

LIST OF TABLES

Table 1 Iran's Oil Production, APOC Profits and Royalty Payments to Iran, 1912-31	14
Table 2 Iran's Oil Production, AIOC Net Profits, British Taxes and Payments to Iran, 1932-1950	17
Table 3 Crude oil production and revenues, 1955-1975	22
Table 4 Iranian oil production, consumption and export, 1980-2006	26
Table 5 Iran's gas production, 1950-2010	29
Table 6 Iranian gas production, consumption and export, 1980-2006	33
Table 7 ISA Sanctions Determinations	47
Table 8 Foreign investment in Iran's energy sector	52
Table 9 Iranian oil production, consumption and export, 2006-2014	53
Table 10 Top oil buyers from Iran and reductions (amounts in barrels per day, including condensates)	55
Table 11 Iranian oil production during the sanctions and world oil prices, 2006-2015	57
Table 12 Iranian gas production, consumption, export and import, 2006-2013	59
Table 13 Iran's oil production after the nuclear deal	81
Table 14 Iran's oil export, 2016	85
Table 15 Iran's oil export by countries, 2016	86
Table 16 Oil prices after the Nuclear Deal	87
Table 17 Iran's natural gas production, 2005-2015 (billion cubic meters)	90
Table 18 Iran's energy consumption, 2005-2015	96
Table 19 Electricity generation in Iran, 2006-2014	96

LIST OF FIGURES

Figure 1 Oil Map of Iran, 1901.....	12
Figure 2 Oil and gas fields and pipelines	28
Figure 3 Key Petroleum and Gas Sector Facilities	31
Figure 4 Iran's primary nuclear facilities	39
Figure 5 Iran's electricity generation capacity by fuel, 2013	62
Figure 6 Iran's natural gas map	93

LIST OF ABBREVIATIONS

BCM	Billion cubic meter
CIA	Central Intelligence Agency
EIA	Energy Information Administration
EU	European Union
GDP	Gross Domestic Product
IAEA	International Atomic Energy Agency
IGAT	Iranian Gas Trunkline
IMF	International Monetary Fund
IOC	International oil companies
IPC	Iranian Petroleum Contract
ISA	Iran Sanctions Act
JCPOA	Joint Comprehensive Plan of Action
LNG	Liquefied natural gas
NIGEC	National Iranian Gas Export Company
NIOC	National Iranian Oil Company
NPT	Non-Proliferation Treaty
OPEC	Organization of Petroleum Exporting Countries
P5+1	Five permanent members of the UN Security Council plus Germany
R&D	Research and development
SWIFT	Society for Worldwide Interbank Financial Telecommunication
TANAP	Trans Anatolian Natural Gas Pipeline
UK	United Kingdom
UN	United Nations
UNSC	United Nation Security Council
US	United States
USA	United States of America

CHAPTER 1

INTRODUCTION

1.1. Scope and objectives

Iran is one of top ten oil and top five natural gas producers in global energy market. Although the country has rich hydrocarbons, Iran does not have a developed energy industry mainly because of sanctions imposed by the West. Iran aims to revive energy sectors and to engage energy market following the nuclear deal with the five permanent members of the UN Security Council, which are the US, the UK, France, Russia and China, plus Germany. In this sense, this thesis analyses impact of the nuclear deal and easing of sanctions on Iran's energy sectors, respectively on its policy.

The thesis starts with the brief history and developments of Iranian energy sectors—oil, natural gas and nuclear to be able to understand and fully analyze evolution of Iranian energy policy. Following the history chapter, condition of energy sectors and direction of Iranian energy policy under nuclear sanctions imposed by P5+1 are analyzed. In the next chapter, the nuclear negotiations and the Joint Comprehensive Plan of Action, which foresee gradual lifting of sanctions applied mainly on Iranian energy market, are examined. In the last chapter, Iranian energy sectors after sanction relief are reviewed in order to see the effects of the nuclear deal on Iranian energy industry.

1.2. Research question

The thesis answers the question of “What is the impact of the nuclear deal and easing of sanctions on Iranian energy sector?”. This question is significant to analyze the development of the Iranian energy market and the evolution of the country's energy policy after the nuclear deal. The question is also important to see the achievements of the nuclear deal of 2015 in Iranian energy sector. The deal signed between Iran

and P5+1 countries raised hopes for the progress of Iranian energy industry, this research question enables to understand what extend the deal and ease of sanctions paved the way for the improvement of Iranian energy industry.

1.3. Literature review

Energy is an integral part of Iranian foreign policy as well as the country's economy. As oil and gas industries play a crucial role in the country's economy, the sanctions imposed on Iran mainly targeted the country's energy market. For this reason, literature on Iranian energy policy examines development of energy market together with Iranian foreign policy. Additionally, as the energy is also considered as a part of security matter, it is hard to find open and clear Iranian sources. Literature on Iranian energy market and policy mainly are mainly discussed by Westerns or Iranian scholars who work out of Iran.

Iran is located on one of a territory which holds rich natural resources in the world. For this reason, the country has been in the spotlight of foreigners, particularly developed Western countries throughout history. Iran's energy sectors were mainly developed by the assistance of UK, USA and Russia. While oil was first found and drilled by British, the country's natural gas industry developed by Russia and the nuclear program was started by the US. Until the end of Pahlavi Era, Iranian economy depended on external rates gained from country's natural resources.¹ Mahdavy describes Iran as a rentier state during Pahlavi Era because oil revenue was a main component of the country's economy.² For this reason, Iran maintained close relations with the Western countries as a part of its energy policy, which evolved around oil, during the Shah period.

The Islamic Revolution of 1979 in Iran led to a beginning of new era in Iranian energy policy, along with the country's new regime. After the Revolution,

¹Mahdavy, H. (1970). The patterns and problems of economic development in rentier states: The case of Iran. In M.A. Cook (Ed.), *Studies in the economic history of the Middle East: from the rise of Islam to the present day*. London: Oxford University Press. p. 432.

²*Ibid.*

antagonistic attitude of new regime towards the Western countries started also a new period in country's energy policy and foreign domination over Iranian energy market has been broken by the anti-Western Islamic and nationalist policies. After the revolution, the US sanctions following hostage crisis and Iran-Iraq War decreased Iran's production and export capabilities in energy sector. Maloney, in his book, which examines Iranian political economy after the Revolution of 1979, argues that the country's oil production has never reached its prerevolutionary levels and he asserts that the Iran's energy market has been damaged by government policy, sanctions and political risks.³ Hence, sanctions imposed on Iran by the Western countries hindered the development of Iranian energy market to a large extent. According to Katzman, sanctions of UN mainly targeted Iran's energy sector because Iranian energy market is regarded as a contributor to the countries' nuclear activity.⁴ Katzman's work showed that while the energy sector, mainly fossil fuel revenues, constituted approximately 20 percent of Iran's GDP prior to 2005, the figures declined over the past decades due to the sanctions.⁵ Farzanegan also asserts that the sanctions targeted the country's oil revenues which affect whole economy.⁶ Hence, the sanctions aimed at preventing development of Iran's energy market, accordingly its economy.

The nuclear negotiations between Iran and P5+1 countries became a historical process for the world politics. According to Kimball, at the deal, P5+1 countries aimed at limiting Iran's nuclear activities to disrupt any efforts to develop nuclear weapon and increasing the role of international community.⁷ While Kimball analyzes the deal in a technical way from the perspective of the sides, Kissenger identifies the

³Maloney, S. (2015). *Iran's Political Economy since the Revolution*. USA: Cambridge University Press. p. 368.

⁴Katzman, K. (2016). *Iran Sanctions*. *Congressional Research Service*.p.37.

⁵*Ibid*, p.9.

⁶Farzanegan, M.R. (2013). Effects of International Financial and Energy Sanctions on Iran's Informal Economy. *SAIS Review*, Vol. 33, No. 1, p. 15.

⁷Kimball, D.G. (2014). Focus: Assessing a Nuclear Deal with Iran. *Arms Control Association*, Vol.44, No. 6.

deal as a issue about “international order”.⁸ Kissenger argues that the negotiations between Iran and P5+1 are “about the ability of the international community to enforce its demands against sophisticated forms of rejection, the permeability of the global nonproliferation regime, and the prospects for a nuclear arms race in the world’s most volatile region”.⁹ He means that the West negotiated for over ten years to detain Iran being a nuclear power and to preserve status quo.

Iran and P5+1 came out well in the deal by signing the Joint Comprehensive Plan of Action, which will provide a road map for the deal’s conditions and sanction relief. Nephew presents a realist description for the JCPOA and it identifies it as “an improvement over the status quo” because it provided confidence the West that Iran cannot acquire nuclear weapon.¹⁰ On the other hand, Samore analyzes the JCPOA by examining both proponents and opponents arguments. According to Samore’s work, opponents of JCPOA claims that it will legitimize Iran’s nuclear activities, while proponents believes that it could undermine supporters of nuclear weapons within Iran, reducing any military threat or conflict with the West through economic integration.¹¹ However, Samore argues that it is hard to project on the long term implication of the JCPOA, as it does not eliminate Iran’s ambition to acquire nuclear weapon.

Following the deal and implementation of the JCPOA, the nuclear related sanctions imposed on Iran started to be lifted gradually. After the deal, Iran started both negotiation process with international energy companies and its reform acts toward energy market. Vakhshouri noted that Iran prioritized increasing oil, natural gas and electricity export to Turkey, Iraq and other Gulf countries in order to reach

⁸Kissinger, H. (2014). *World Order*. USA: Penguin Press. p. 96

⁹Kissinger, H. (2014). *World Order*. USA: Penguin Press. p. 96

¹⁰Nephew, R. (2015). Commentary on the Nuclear Deal between Iran and the P5+1. *The Center on Global Energy Policy at Columbia University’s School of International and Public Affairs*. p. 1.

¹¹Samore, G. (2015). *The Iran Nuclear Deal: A Definitive Guide*. USA: Belfer Center for Science and International Affairs. p.8.

international market, particularly EU, via these transit points.¹² Hence, the country intensified talks with foreign companies to increase energy cooperation. However, Iran has not been engaged in any official energy project at governmental level.

In the aftermath of the nuclear deal, an optimistic point of view was prevalent about future of Iranian energy market and it was welcomed with hope since they thing that the sanction relief would pave the way for improvement of energy sectors and regaining its power. As an illustration, Mohamedi claims that ease of sanctions could revive Iranian oil and gas industries as foreign private and national oil companies are seeking to invest in the country.¹³ Ghorban also estimated that Iran would regain the oil market following the deal and sanction relief because Iran's consumers had to switch from Iranian oil to other resources during the sanction.¹⁴ Damianova's study on Iran's re-emergence on global energy market also showed that in the aftermath of sanction relief, Iran could re-emerge as a major player in global oil market in the short term but the country needs time to gain its power in natural gas industry.¹⁵ Additionally, Tanchum analyzes the impact of the deal on Iranian energy from broader perspective and he argues that the removal of sanctions will not only lead to improvement of Iranian energy market, it might also restructure the Eurasian energy geopolitics through possible pipeline projects.¹⁶ So, the deal created hopes for revival of both Iran's local market, as well as the global energy market.

¹²Vakhshouri, S. (2015). Iran's Energy Policy After the Nuclear Deal. *Atlantic Council Global Energy Center*. p.2.

¹³Mohamedi, F. (2015). The Oil and Gas Industry. In R. Wright (Ed.), *The Iran Primer: Power, Politics, and US Policy* (Chapter 4, Economy) Retrieved from <http://iranprimer.usip.org/>

¹⁴Ghorban, N. (2015). Op-Ed: Iran's Oil and Gas Sector: The Post-Sanctions Opportunities. Retrieved from <https://mees.com/opec-history/2015/07/10/op-ed-irans-oil-and-gas-sector-the-post-sanctions-opportunities/>

¹⁵Damianova, K.K. (2015). Iran's re-emergence on global energy markets: opportunity, challenges and implications. *The European Centre for Energy and Resources Security and the Konrad-Adenauer-Stiftung*. p.8

¹⁶Tanchum, M. (2015). A Post-Sanctions Iran and the Eurasian Energy Architecture: Challenges and Opportunities for the Euro-Atlantic Community. *Atlantic Council*. p.3.

On the other hand, some assert that the sanction relief following the nuclear deal had limited impact on Iranian energy market for several reasons such as continuity of several sanctions, low oil prices, structure of Iranian energy market, and the risk of breakdown of deal. Iqbal argues that Iranian economy remained weak since low oil prices. He says that lower oil prices weaken the budget although the country boosted oil production and related investment.¹⁷ Jalilvand describes progress as modest but he underlined that the deal “opened the door to international cooperation” and it enabled Iran to return to international energy market.¹⁸ He stated that the deal has not led to an achievement in Iranian energy sector’s capacity, although it attracted the interest of international companies, so the country is still waiting for to see the concrete outcome of it.¹⁹ According to Jalilvand, the complex political structure in Iran is posing obstacle for the development of the country’s energy outlook.²⁰ He noted that there is also an increased uncertainty on Iran’s energy outlook due to the critics of Donald Trump administration in the U.S about the JCPOA.²¹ Hence, political and economic uncertainties limited Iran’s progress in energy field and full integration into the global energy market.

1.4. Argument

Contrary to the opinions of scholars who claim that Iran would regain power in energy with the nuclear deal, this thesis argues that the impact of the deal on energy sector has been limited. The nuclear deal between Iran and P5+1 countries raise expectation and hopes regarding full progress in Iranian energy industry and integration of the country into the global energy market. Iran was expected to strengthen energy market following the nuclear deal and the ease of sanctions. The

¹⁷Iqbal, Z. (2016). Iran’s Post-Sanctions Economic Options. *Middle East Institute*.
<http://www.mei.edu/content/irans-post-sanctions-economic-options>

¹⁸Jalilvand, D.R. (2017). Iranian Energy: A Comeback with Hurdles. The Oxford Institute for Energy Studies. p.3.

¹⁹Jalilvand, D.R. (2017). Iranian Energy: A Comeback with Hurdles. The Oxford Institute for Energy Studies. p.3.

²⁰*Ibid*, p.4.

²¹*Ibid*, p.2.

sanctions relief could provide Iran an opportunity to revive the country's oil and gas industries with foreign cooperation and investments. In the light of discussed literature, political and economic obstacles such as maintenance of several sanctions, low oil prices, structure of Iranian energy market, and the risk of a breakdown of the deal hindered expected improvement in Iranian energy market. Hence, the nuclear deal and sanction relief had limited impact on Iranian energy policy, however tangible results of the deal would be observed in the long term when the conjuncture will completely settle for Iran.

1.5. Organization of thesis

The thesis consists of six chapters including introduction and conclusion. Following chapter summarizes the history of introduction and development of energy sectors in Iran. The chapter is significant to deeply understand the evolution of Iranian energy policy, along with two regimes policies. Iranian energy policy was shaped and dominated by the foreigners but it experiences its shining period, during the Pahlavi era. A new period started for Iranian energy sector after its nationalization with the Islamic Revolution. The new regimes' anti-Western policies detracted Iranian energy sectors from Western domination. In 2000s, when Iran's nuclear activities came to light, the West's skeptical attitude toward the new regime was reinforced and the period of sanctions began for Iran.

In the third chapter, the impacts of sanction of the West over the Iranian energy sectors are examined. The sanctions, imposed by the US, UN and EU, had severe effects on Iranian energy sectors, especially oil and gas as they banned import of good and productions. Iran both could not exports its energy resources and it could not import technology to develop its energy infrastructure. Hence, the country has been retained from using and taking advantage of its energy resources. Despite Iran continued its export activities mainly with Asian countries even in limited scale, the country was isolated from the global markets and its economy, particularly energy sector, got hurt due the pressure of nuclear related sanctions imposed by the West.

The chapter four examines the nuclear negotiations between Iran and the five permanent members of the UN Security Council, which are the US, the UK, France, Russia and China, plus Germany and it analyzes the Joint Comprehensive Plan of Action signed on 14 July 2015, to be able to identify the effect of easing of sanctions on Iranian energy sectors. As a result of the comprehensive agreement, the International Atomic Energy Agency verified that Iran complied with the nuclear related steps and it was agreed that the nuclear related sanctions, including energy related sanctions, would be gradually lifted. The JCPOA foresees that successful implementation of the deal would enable Iran to fully enjoy its right to nuclear energy for peaceful purposes. Despite diversity of views on the JCPOA, the plan gave a chance to the country for integrating into the global market.

The chapter five analyzes effects of the nuclear deal and sanction relief on Iranian energy sectors. The new policy, cooperation and investment plans on Iranian oil, gas and electricity sectors are examined under the chapter. The deal did not only have significance for international politics, also it was essential for the Iranian energy policy, along with the global energy markets. The gradual lifting of sanctions provided an opportunity for the country to promote and modernize energy sectors through new foreign investments. Although the country made efforts to regain its power in energy sectors, some factors such as Iranian legislative and banking systems, the lack of infrastructure in the country does not allow developing the country's energy industry quickly. The deal directed Iran to follow more extrovert policy in energy but it had a limited impact on development of Iran's energy market. Finally, in the conclusion, the findings of the thesis are summarized.

CHAPTER 2

ENERGY POLICY OF IRAN BEFORE SANCTIONS 1908-2006

This chapter analyses the development and situation of Iranian oil and gas sector along with its nuclear activities before the UN sanctions. It provides a brief history of country's energy sectors and it helps a better understanding for further developments regarding the energy policy of Iran. It shows how foreign actors played prominent role in development of Iranian energy sectors. The discovery of Persian oil was a milestone not only for Iranian energy sector but also for the Middle East, from then on, became a center of international economic and political rivalries. Iranian oil was first found and drilled by the foreigners, thus the oil industry was dominated and directed by mainly the Great Britain. Despite the fact that Iran became a prominent oil producer in the world, Iranian economy could not entirely benefit from the revenues of this profitable industry. The foreign concessions and domination over the Iranian oil industry continued until 1950s but it was challenged by Mossadeq, the leader of National Front and the prime minister of that time. However, Mossadeq's attempt to nationalize Iranian oil industry ended up the British and US backed coup and foreign powers maintained their sovereignty over the Iranian energy sector. Although, the oil industry was in the limelight and prominent, the seeds of both gas sector and nuclear program was sowed in the early periods of Iranian energy policy. Both gas industry and nuclear program were also improved by the foreign assistance, and while nuclear program was started by the US support, the Soviet Union played significant role in development of the Iranian gas industry. As its economy depended on external rates received on country's resources, Iran was identified as a rentier state during that period²² and its oil sector played a major world in the world market. Hence, the early Iranian energy policy, which mainly evolved around the oil

²²Mahdavy, H. (1970). The patterns and problems of economic development in rentier states: The case of Iran. In M.A. Cook (Ed.), *Studies in the economic history of the Middle East: from the rise of Islam to the present day*. London: Oxford University Press. p. 432.

industry, was formed and operated under the foreign domination until the Islamic Revolution of 1979. The Revolution did not only inaugurate a new political regime in Iran but also it led to beginning of a new era in Iranian energy policy. The foreign investors had to leave the country and the foreign hegemony over the Iranian energy sector was broken by the anti-Western Islamic and nationalist policies of the new regime. Following the Revolution, the US-Iran hostage crisis and the Iran-Iraq War also caused a panic in oil market and oil prices incredibly increased once again.²³ Moreover, the US sanction that blocked foreign investment in Iran had also an impact on Iranian energy sector and Iran's export capabilities decreased. While demand for energy increased, supply remained limited because of aging refineries, sanctions and economic constraints. As Maloney says, "Iran's oil production has never returned to its prerevolutionary height and the sector has been battered by government policy, sanctions, war and political risk".²⁴ Despite Iran holds the world's fourth largest proved oil reserves and the world's second largest natural gas reserves²⁵, it could be neither a major oil exporter, nor natural gas exporter after the Islamic Revolution of 1979. Furthermore, the crisis caused by the Iran's nuclear activities also increased the isolation of Iran from the world market. In the early 2000s, the reveal of documents regarding Iranian nuclear activities started allegations of the West, especially the US, and Iran was accused of producing nuclear weapon although it was a signatory of the Nuclear Non-Proliferation Treaty. In spite of the fact that the investigations made by the International Atomic Energy Agency could not reach a concrete finding as a result of its investigations, uncompromising attitude of the Iranian government, which was adopted by Mahmoud Ahmadinejad, resulted in sanctions for the country. In spite of the fact that Iranian government underestimated the resolution of the UN Security Council, sanctions started a new and hard period for the country.

²³Brief History, OPEC. Retrieved from http://www.opec.org/opec_web/en/about_us/24.htm

²⁴Maloney, S. (2015). *Iran's Political Economy since the Revolution*. USA: Cambridge University Press. p. 368.

²⁵Iran Country Analysis Brief (2015). U.S. *Energy Information Administration*. Retrieved from <https://www.eia.gov/beta/international/country.cfm?iso=IRN>

2.1. The evolution of Iranian oil industry

The use of oil and gas was dated from the ancient ages in Persia. The investigations of Iranian oil began in 19th century and the most prominent concessions were given to a British citizen, Baron Paul Julius von Reuter in 1872.²⁶ According to the concession, Nasser al-Din Shah sold the right to construct mine, railway, dam, road and industrial facilities.²⁷ While some sources describe this concession as the first concession, British statesman Curzon, in *Persia and Persian Question*, stated that concessionaries of various countries, from France to Germany, had already been interested in Persian sources between 1865 and 1871.²⁸ He also underlined that the concession “handed over the entire resources of Persia to foreign hands”.²⁹ However, the concession had to be cancelled because of pro-Russian opposition. Despite rivalry of Russia and Great Britain over Persian territories, in 1901, A British banker, William Knox D’Arcy received sixty-year concession to search, obtain and trade oil and natural gas in 480,000 square miles of territory of the Persian Empire in return 20,000 pounds worth of share and 16 percent of the annual net profit were provided to Shah³⁰ in the need of fund.³¹ Yergin, in *the Prize*, describes the deal as the beginning of “the era of oil” and identifies D’Arcy as the founder of the Middle Eastern oil industry.³² Yergin also remarks that the concession made the Middle East a center of the international politics and economic system.³³ Although the hostile attitudes and prevention of local tribes, the first oil was found and drilled by Burma

²⁶Nyrop, R.F. (Eds.). (1978). *Iran: A Country Study*. Washington, D.C.: The American University. p. 285.

²⁷Abrahamian, E. (2008). *A History of Modern Iran*. New York: Cambridge University Press. p. 38.

²⁸Curzon, G.N. (1892). *Persia and the Persian Question, Volume I*. London: Longmans, Green & Co. p. 614. Retrieved from http://bahai-library.com/curzon_persia_persian_question&chapter=18

²⁹*Ibid.*

³⁰Yergin, D. (1991). *The Prize: The Epic Quest for Oil, Money and Power*. New York: Simon & Schuster, p. 137.

³¹Nyrop, R.F. (Eds.). (1978). *Iran: A Country Study*. Washington, D.C.: The American University. p. 286.

³²Yergin, D. (1991). *The Prize: The Epic Quest for Oil, Money and Power*. New York: Simon & Schuster, p. 134.

³³*Ibid*, p. 135.

Oil Company, along with a gas, in 1908, in Khuzestan Province. The following year the Anglo-Persian Oil Company was established and the British government shared 51 percent of the Company, it also made a contract to supply fuel for the British Navy below the market price.³⁴ The company operated as the Anglo-Iranian Oil Company after changing the name of country as Iran, in 1935 and it became a significant actor in petroleum industry.³⁵



Figure 1: Oil Map of Iran, 1901

Source: Yergin, D. (1991). *The Prize: The Epic Quest for Oil, Money and Power*. New York: Simon & Schuster, p. 146

³⁴Nyrop, R.F. (Eds.). (1978). *Iran: A Country Study*. Washington, D.C.: The American University. p. 287.

³⁵Yergin, D. (1991). *The Prize: The Epic Quest for Oil, Money and Power*. New York: Simon & Schuster, p. 134.

The first oil production of Iran was 80,000 tons of barrels in 1912 and even though the Anglo-Persian Oil Company suffered from the lack of capital required for constructing a developed refinery, the oil production increased rapidly and it became 1.4 million tons in 1920.³⁶ However, the British government had purchased the control of the Anglo-Iranian Oil Company, in 1914, for this reason, the oil revenues could not reflect on Iranian economy as the oil industry remained foreign owned.³⁷ There were a huge difference between the profits of the Company and Iran, as indicated in Table 1. The same year the largest Abadan refinery began to operate and the oil revenues started to rise but Iranian government could not entirely enjoy the oil earnings.³⁸ This situation led to disagreements on share of oil revenues between the government and the Company.

³⁶Nyrop, R.F. (Eds.). (1978). *Iran: A Country Study*. Washington, D.C.: The American University, p. 287.

³⁷Carey, J.P.C. (1974). Iran and Control of its Oil Resources. *Political Science Quarterly*, vol. 89, no. 1, p. 149.

³⁸Carey, J. P. C and Carey, A. G. (1960). Oil and Economic Development in Iran. *Political Science Quarterly*, Vol. 75, No.1, p. 68-69.

**Iran's Oil Production, APOC Profits, and Royalty Payments to Iran,
1912-31**

Year ^a	Oil production, 000 long tons (1)	AIOC profits, ^b £000 (2)	Royalty to Iran, £000 (3)
1912-13	80		
1913-14	274	27	10
1914-15	376	62	
1915-16	459	55	
1916-17	644	458	
1917-18	897	2,113	
1918-19	1,106	2,652	325 ^c
1919-20	1,385	1,849	469
1920-21	1,743	3,264	585 ^d
1921-22	2,327	3,779	593
1922-23	2,959	3,431	533
1923-24	3,714	3,517	411
1924-25	4,334	4,067	831
1925-26	4,556	4,397	1,054
1926-27	4,832	4,800	1,400
1927-28	5,358	4,106	502
Apr. 1 to Dec. 31, 1928	4,290	3,689	529
1929	5,461	4,274	1,437
1930	5,939	3,786	1,288
1931	5,750	2,413	307 ^e

Table 1: Iran's Oil Production, APOC Profits and Royalty Payments to Iran, 1912-31

Source: Elm, M. (1992). *Oil, Power and Principle: Iran's Oil Nationalization and its Aftermath*. New York: Syracuse University Press, p. 18.

In 1920, the Interpretive Agreement was signed by the British and Iranian governments to suppress the complaints but it could not solve the problem.³⁹ In addition to foreign domination, Qajar Shahs also detained Iranian economy to benefit from the oil industry. They did not use the oil revenues for the budget of the country and they took advantage of it for their own expenditures. This situation continued until 1925 and Reza Shah embraced a policy which incorporated the oil revenues into the budget of country.⁴⁰

³⁹Nyrop, R.F. (Eds.). (1978). *Iran: A Country Study*. Washington, D.C.: The American University, p. 288.

⁴⁰Nyrop, R.F. (Eds.). (1978). *Iran: A Country Study*. Washington, D.C.: The American University, p. 287.

During the Great Depression of 1930, when oil revenues decreased, the oil earnings of Iranian government fell sharply and it had the lowest level since 1917 and this situation prompted Reza Shah to cancel the historical D'Arcy Concession; thereupon the Great Britain brought the issue in to the League of Nations in 1932.⁴¹ Before the Leagues of Nations reached a decision, the original concession was altered and the sides made a new agreement in 1933.⁴² According to the new agreement, the concession area reduced by three-quarter, the Royalty payments was changed to a fixed amount per ton of oil produced from a share of company profits, a minimum annual payment was guaranteed, the number Iranian employees was increased and the duration of concession was extended from 1961 to 1993.⁴³

In pursuit of the Great Depression, the World War II also had an impact on the oil industry. During the War, the oil production fell into decline once again and the Company lost some of its markets.⁴⁴ While the oil production was 10 million tons before the War, in the forthcoming years of it, this rate decreased to 6.6 million tons and this situation caused to a decline in oil revenues of Iran as indicated in Table 2. During the War period, the country also witnessed the change of ruler. The new concession that was signed by Reza Shah betrayed Iranians' trust for Shah's nationalist discourse and it proved Shah's dependency to the Great Britain. This opinion intensified the opposition against Shah and he was forced to leave the country in 1941 when the Great Britain and Soviet Union, after then the United States, occupied Iran.⁴⁵ Allies of the War did not want lose the physical control of

⁴¹Metz, H. C. (1989). *Iran: A Country Study*. Washington, D.C.: U.S. Government Printing Office, p. 162.

⁴²Metz, H. C. (1989). *Iran: A Country Study*. Washington, D.C.: U.S. Government Printing Office, p. 163.

⁴³Yergin, D. (1991). *The Prize: The Epic Quest for Oil, Money and Power*. New York: Simon & Schuster, p. 271.

⁴⁴Elm, M. (1992). *Oil, Power and Principle: Iran's Oil Nationalization and its Aftermath*. New York: Syracuse University Press, p. 39.

⁴⁵Abrahamian, E. (2008). *A History of Modern Iran*. New York: Cambridge University Press, p. 96-97.

oil, also they aimed to open a land corridor to the Soviet Union, thus Reza Shah was sent into exile by the Allies to ensure oil flow to Britain and supplies to the Soviet Union and the new Shah, who was son of Reza Shah, ascended the throne by complying with the Allied countries.⁴⁶ The young Mohammad Reza Shah maintained a close relation with the West, especially the Great Britain and the United States. By the end of the War, the United States also began to show its interest in Iranian oil and two American companies, Jersey and Socony signed twenty-year agreement with the Anglo-Iranian Oil Company in 1947.⁴⁷ Thus, Iranian oil found new markets for itself and Iran became one of the most essential centers for the oil industry. The oil production increased dramatically after the World War II and by 1950, Iran became the fourth largest oil producer in the world and it composed 6 percent of world production.⁴⁸

⁴⁶*Ibid*, p. 97.

⁴⁷Yergin, D. (1991). *The Prize: The Epic Quest for Oil, Money and Power*. New York: Simon & Schuster, p. 422.

⁴⁸Nyrop, R.F. (Eds.). (1978). *Iran: A Country Study*. Washington, D.C.: The American University, p.287.

**Iran's Oil Production, AIOC Net Profits, British Taxes, and Payments to Iran,
1932–50**

Year	Oil production, 000 long tons	AIOC net profits, £000 ^a	British taxes, £000	Payments to Iran, £000
1932	6,446	2,380	195	1,525
1933	7,087	2,654	305	1,812
1934	7,537	3,183	512	2,190
1935	7,488	3,519	409	2,221
1936	8,198	6,123	911	2,580
1937	10,168	7,455	1,652	3,525
1938	10,195	6,109	1,157	3,307
1939	9,583	2,986	1,956	4,271
1940	8,627	2,842	2,975	4,000
1941	6,605	3,222	2,921	4,000
1942	9,339	7,790	4,918	4,000
1943	9,706	5,639	7,663	4,000
1944	13,274	5,677	10,636	4,464
1945	16,839	5,792	10,381	5,624
1946	19,190	9,625	10,279	7,132
1947	20,195	18,565	14,800	7,104
1948	24,871	24,065	28,310	9,172
1949	26,807	18,390	22,480	13,489
1950	31,750	33,103	50,707	16,032

Table 2: Iran's Oil Production, AIOC Net Profits, British Taxes and Payments to Iran, 1932-1950
Source: Elm, M. (1992). *Oil, Power and Principle: Iran's Oil Nationalization and its Aftermath*. New York: Syracuse University Press, p. 38.

Despite the fact that Shah had close relations with the West, Iranians bore hostility against foreign powers, especially the Great Britain. As the Anglo-Iranian Oil Company was the most prominent source of foreign earnings, hostility of people concentrated on the Company and main question of debate was derived from the distribution of oil earning. The British government received more than Iranian government and this injustice distribution of oil earning triggered the debates and enmity. Meanwhile, the wave of nationalism in the post-World War II became influential over Iranian politics and this also had an impact on the oil industry of the country.

The Agreement of 1933 enabled Iran to receive not only royalty but also 20 percent of the Company's profit.⁴⁹ The Anglo-Iranian Oil Company gradually became one of the largest oil company and Iranians desired to take more advantage of the company. Despite the fact that resources were belong to Iran, the concession was more profitable for the Anglo-Iranian Oil Company than Iran. In this context, increasing pressures regarding to secure Iran's right in its resources forced the Anglo-Iranian Oil Company to negotiate a Supplemental Agreement in 1949 and the new agreement aimed at increasing royalties and lump-sum payment.⁵⁰ Although, after a long lasting bargaining, the Anglo-Iranian Oil Company and Iran discontentedly compromised on the new regulation, which provided Iran between 32 and 37.5 percent of net profits, Iranian government, leaded by Mohammad Mosaddeq, discussed the issue in the parliament and they called for nationalization of the Anglo-Iranian Oil Company by abolishing the concessions.⁵¹ Mossadeq believed that "As long as the Iranians have no control over their own oil industry, they would not be able to achieve freedom and independence".⁵² The proposal of Mossadeq was approved by the Senate and after getting approval of Shah, it became a law and the National Iranian Company, which was wholly owned by government, was founded.⁵³ Hereunder, the government was assigned as the owner of country's oil and natural gas resources and it obtained right to search, refine, produce, distribute and sales of resources.⁵⁴

⁴⁹Yergin, D. (1991). *The Prize: The Epic Quest for Oil, Money and Power*. New York: Simon & Schuster, p. 453.

⁵⁰*Ibid.*

⁵¹Elm, M. (1992). *Oil, Power and Principle: Iran's Oil Nationalization and its Aftermath*. New York: Syracuse University Press, p. 55-74.

⁵²*Ibid.*

⁵³Painter, D. (1993). *The United States, Great Britain and Mossadegh*. Institute for the Study of Diplomacy.p.1 Retrieved from <https://americamiddleeast.files.wordpress.com/2012/09/the-us-and-mossadegh-1951-19531.pdf>

⁵⁴Nyrop, R.F. (Eds.). (1978). *Iran: A Country Study*. Washington, D.C.: The American University, p.290.

The oil nationalization act of Mossadeq created a threat not only for the Great Britain but also the United States. While the Great Britain was faced with the risk of losing its monopoly over Iranian oil, the United States feared that the dispute between Iran and the Britain would pave a way for Soviet influence in the region.⁵⁵ However, Mossadeq's attempt reversed within two years and continuing dispute ended up with a British and US backed coup of 1953. The US and British intelligence agencies organized a coup, with the support of local agents, to overthrow Mossadeq and his government as "it was incapable of reaching an oil settlement with interested Western countries" in words of CIA operative Donald Wilber and it put Iran in "danger of falling behind the Iran Curtain."⁵⁶ All these developments kept the Iranian oil industry from operating because of lack of trained Iranian personnel and British oil boycott in other words turmoil brought oil production to a halt.⁵⁷ On the other hand, even though Mossadeq gone, it was known that the Anglo Iranian Oil Company could never bring its monopoly and power.⁵⁸ At the end of 1953, eight significant oil companies, which were Standard Oil of California, Standard Oil of New Jersey, Texaco, Gulf, Socony-Vacuum, Compagnie Française de Pétroles, Shell and the Anglo Iranian Oil Company gathered to have share in Iranian oil industry and discuss future arrangements, as a result of deal a significant historical phase in Iranian oil history began and contracting parties agreed on partition of industry.⁵⁹ According to the agreement of the new consortium, the Anglo Iranian Oil Company, which was named after British Petroleum, acquired 40 percent, the US oil companies 40 percent, Shell 14 percent and Compagnie Français de Pétroles 6 percent of share

⁵⁵Painter, D. (1993). The United States, Great Britain and Mossadegh. Institute for the Study of Diplomacy.p. 1 Retrieved from <https://americamiddleeast.files.wordpress.com/2012/09/the-us-and-mossadegh-1951-19531.pdf>

⁵⁶Wilber, D. (1953). Clandestine Service History: Overthrow of Premier Mossadeq of Iran, November 1952-August 1953. *CIA Historical Division* Retrieved from <https://cryptome.org/iran-cia/cia-iran-pdf.htm>

⁵⁷Nyrop, R.F. (Eds.). (1978). *Iran: A Country Study*. Washington, D.C.: The American University, p.290.

⁵⁸Elm, M. (1992). *Oil, Power and Principle: Iran's Oil Nationalization and its Aftermath*. New York: Syracuse University Press, p. 310.

⁵⁹*Ibid.*

in Iranian oil industry.⁶⁰ In the second round of consortium negotiations, share of Iran was discussed and it was agreed that it would receive 50 percent of the net profits.⁶¹ Moreover, the National Iranian Oil Company secured ownership of the Iranian oil and gas industry on paper. Thus, the Consortium of American, British, Dutch and French oil companies signed an agreement with Iran in 1954.⁶² Despite opposition within the parliament, the Consortium Agreement was ratified through pressure of the Shah.⁶³ The consortium of 1954 indicated that Iranian government would lose its control once again and the US also became a major player in Iranian oil industry following the Great Britain, until 1979.

As Iranian oil industry grew, the foreign companies showed great interest on the region and they took advantage of lawlessness of Iranian petroleum sector. In 1957, the first petroleum law of Iran, Petroleum Act of 1957, was drafted to regulate relationship between the state and the international companies and it enabled a legal background for further agreements.⁶⁴ Firstly, the Act of 1957 recognized the National Iranian Oil Company as the owner of all country's oil resources and enriched its functions.⁶⁵ Second, according to the new petroleum law, NIOC was also authorized to divide onshore and offshore areas of country into districts and open them to exploration of foreign oil companies thorough a bidding process.⁶⁶ Hence, the NIOC could enter joint ventures or other legal arrangements with the foreign companies on condition that holding not less 30 percent ownership in a joint venture.

⁶⁰Abrahamian, E. (2001). The 1953 Coup in Iran. *Science & Society*. Vol. 65, No.2. p.211.

⁶¹Elm, M. (1992). *Oil, Power and Principle: Iran's Oil Nationalization and its Aftermath*. New York: Syracuse University Press, p. 324.

⁶²Carey, J. P. C and Carey, A. G. (1960). Oil and Economic Development in Iran. *Political Science Quarterly*, Vol. 75, No.1, p. 69.

⁶³Elm, M. (1992). *Oil, Power and Principle: Iran's Oil Nationalization and its Aftermath*. New York: Syracuse University Press, p. 327.

⁶⁴Shahri, N.N. (2010). The Petroleum Legal Framework of Iran: History, Trend and the Way Forward. *China and Eurasia Forum Quarterly*, Vol. 8, No. 1, p. 112-117.

⁶⁵Nyrop, R.F. (Eds.). (1978). *Iran: A Country Study*. Washington, D.C.: The American University, p.293.

⁶⁶*Ibid.*

Moreover, the Act also put a territorial limit for foreign companies and provides a guideline on payment and tax procedure.⁶⁷ In pursuit of enforcement of the Act of 1957, Iran entered six joint ventures with European and American oil companies by 1971.⁶⁸ While oil production and earning of Iran was rising, the foreign influence also increased in Iranian oil industry and this situation made Iran more dependent on the West.

In addition to the law of 1957, the second petroleum law was enacted one year after the oil crisis of 1973.⁶⁹ Iran, as a founding member of the Organization of Petroleum Exporting Countries, joined the oil embargo of Arab countries in response to 1973 Yom Kippur War and they raised oil prices by 70 percent.⁷⁰ The law of 1974, underlined that Iranian oil industry is national and it was opened to foreign investment only through service contract in which foreign companies was recognized as contractors that receive remuneration in return of their services.⁷¹ According to Shahri, the oil crisis of 1973 empowered Iran's bargaining position in the oil industry in relation to foreign companies.⁷² However, along with the Consortium agreement, the law of 1974 also became unaffected with the Islamic Revolution of 1979. After formation of the Consortium of 1954, the Iranian oil industry made a substantive progress, and production and consumption of oil increased by 1974. While oil production was 329,000 barrels per day in 1955, it became 6.0 million barrels per

⁶⁷*Ibid.*

⁶⁸*Ibid.*

⁶⁹Shahri, N.N. (2010). The Petroleum Legal Framework of Iran: History, Trend and the Way Forward. *China and Eurasia Forum Quarterly*, Vol. 8, No. 1, p. 118.

⁷⁰Carey, J.P.C. (1974). Iran and Control of its Oil Resources. *Political Science Quarterly*, vol. 89, no. 1, p. 157.

⁷¹Shahri, N.N. (2010). The Petroleum Legal Framework of Iran: History, Trend and the Way Forward. *China and Eurasia Forum Quarterly*, Vol. 8, No. 1, p. 118.

⁷²*Ibid*

day in 1974.⁷³ However, oil crisis of 1973 had an impact on Iranian oil industry as well and oil production dropped to 5.3 million barrels per day in 1975.⁷⁴

Year	Average Barrels per Day	Oil Receipts
	(in thousands)	(in millions of United States dollars)
1955	329.2	90.2
1956	538.8	150.9
1957	721.8	212.8
1958	825.8	247.2
1959	927.3	262.4
1960	1,052.9	285.0
1961	1,178.3	291.2
1962	1,314.2	343.2
1963	1,465.8	380.0
1964	1,690.1	482.2
1965	1,885.4	514.1
1966	2,113.3	608.2
1967	2,596.6	751.6
1968	2,847.6	853.4
1969	3,374.9	922.8
1970	3,828.6	1,109.3
1971	4,539.6	1,851.1
1972	5,024.1	2,396.0
1973	5,861.1	4,399.2
1974	6,021.7	21,443.2
1975	5,300.0	20,000.0*

*Estimated

Table 3: Crude oil production and revenues, 1955-1975

Source: Nyrop, R.F. (Eds.). (1978). *Iran: A Country Study*. Washington, D.C.: The American University, p.431.

As the consumption of industrialized Western countries decreased, oil production also declined in Iran. In 1970s, Iran's proved crude oil reserves were about 60 billion barrels and it had six refineries in operation with the capacity of 800,000 barrel per day.⁷⁵ The major importers of Iranian oil were the Western European countries,

⁷³Nyrop, R.F. (Eds.). (1978). *Iran: A Country Study*. Washington, D.C.: The American University, p.295.

⁷⁴*Ibid.*

⁷⁵Metz, H. C. (1989). *Iran: A Country Study*. Washington, D.C.: U.S. Government Printing Office, p. 164.

Japan and the US. By the mid-1070s, American imports of Iranian oil increased about 7 percent.⁷⁶ While Iran mainly exported its oil, growing domestic production began to reduce the proportion of oil export. In 1976, domestic consumption amounted to 23 million tons and export of crude oil and products was 272 million tons.⁷⁷ After the crisis, oil prices started to increase again and NIOC continued its planned investments to increase its profit from oil industry. Nevertheless, by the end of 1970s, oil production started to decrease because of political turmoil in the country. Political opposition against Shah and his modernization policies had an impact on oil industry as well, and strikes and strikes in oil industry brought oil production to a halt so much so that the USA, ironically supplied oil to Iran for its domestic consumption.⁷⁸ On the other hand, all oil investments and the Consortium agreement were cancelled with the Islamic Revolution of 1979.⁷⁹ From that date on, Iran severed all ties the West and the oil industry was completely nationalized by the new regime.

As oil is one of the cornerstones of Iranian economy, it was also used by the new regime just like in the period of Shah and it continued to dominate economy of Iran. However, Mohamedi argues that Iranian oil and gas sector faced two crucial problems after the Revolution of 1979; while demand increased because of population growth, supply was limited because of aging oil refineries and financial constraints and embargoes as indicted in Table 4.⁸⁰ In other words, while the energy

⁷⁶Nyrop, R.F. (Eds.). (1978). *Iran: A Country Study*. Washington, D.C.: The American University, p.296.

⁷⁷Nyrop, R.F. (Eds.). (1978). *Iran: A Country Study*. Washington, D.C.: The American University, p.296.

⁷⁸Yergin, D. (1991). *The Prize: The Epic Quest for Oil, Money and Power*. New York: Simon & Schuster, p. 681

⁷⁹*Ibid.*

⁸⁰Mohamedi, F. (2015). The Oil and Gas Industry. In R. Wright (Ed.), *The Iran Primer: Power, Politics, and US Policy* (Chapter 4, Economy) Retrieved from <http://iranprimer.usip.org/>

demand growth was 6.4 percent, supply growth was 5.6 percent since 1980.⁸¹ Modernization and growth of oil industry were limited by both the lack of foreign energy investment and the US sanctions after the Revolution.⁸² The new regime brought sanctions on Iranian oil and gas sector in its wake. The hostage crisis, following the Revolution of 1979, resulted in oil embargo of the US on Iran and it prohibited exporting of Iranian oil to American companies.⁸³ Thereupon, Iranian oil found new vendees in the market and it started to supply oil to Japan for 50 dollars per barrel.⁸⁴ In addition to the Revolution and the US-Iran hostage crisis, the Iran-Iraq War posed a threat for another shock in oil market at the beginning of 1980s. During the War, the world's second largest refinery Abadan was attacked along with Iranian oil cities.⁸⁵ The War had a huge impact on oil market, the oil production declined and oil prices increased to forty two dollars a barrel immediately in the world.⁸⁶ Besides, the US sanctions which began in 1979 and expanded in 1995 affected the oil production in the country as they banned Iranian oil imports. While Iran produced 6 million barrels per day in the late Shah period, the new regime struggled to ensure oil production above 3.5 million barrels per day.⁸⁷ In 1990s, after the death of Khomeini and elected of more pragmatic and reformist candidates such as Ali Hashemi Rafsanjani and later of Mohammad Khatemi, Iran introduced new arrangement, which provide field for foreign oil companies and they were paid back in crude oil produced, however the threat of sanctions retained companies to invest in

⁸¹Stern, R. (2007). The Iranian petroleum crisis and United States national security. *Proceeding of the National Academy of Science of the United States of America*, Vol.104, No.1, p.377.

⁸²Cordesman, A.H. (2004). *Energy Development in the Middle East*. Washington D.C.: Center for Strategic and International Studies. p.186.

⁸³Yergin, D. (1991). *The Prize: The Epic Quest for Oil, Money and Power*. New York: Simon & Schuster, p.702.

⁸⁴Yergin, D. (1991). *The Prize: The Epic Quest for Oil, Money and Power*. New York: Simon & Schuster, p.702.

⁸⁵*Ibid*, p.711.

⁸⁶*Ibid*.

⁸⁷Mohamedi, F. (2015). The Oil and Gas Industry. In R. Wright (Ed.), *The Iran Primer: Power, Politics, and US Policy* (Chapter 4, Economy) Retrieved from <http://iranprimer.usip.org/>

Iran.⁸⁸ Since 2000s, Iran turned its face to the East and it tried to develop relations with China and India in energy sector, but these countries also had to reduce their activities with Iran because of the UN sanctions which were imposed as a result of the Nuclear Crisis of 2002.⁸⁹ For Stern, another reason of decline of oil export after the Revolution was the mismanagement of the oil industry and he believes that the new regime was incapable of maximizing profit and minimizing cost.⁹⁰ Nevertheless, Stern also argues that although the mismanagement of the energy sector, Iran's real oil revenues were nearly their highest level because of rising prices so it compensated low oil export in 2000s.⁹¹ In other words high oil prices in the world saved the Iranian economy at the beginning of 2000s.

⁸⁸*Ibid.*

⁸⁹*Ibid.*

⁹⁰Stern, R. (2007). The Iranian petroleum crisis and United States national security. *Proceeding of the National Academy of Science of the United States of America*, Vol.104, No.1, p.381.

⁹¹*Ibid.*

Iranian Oil Production, Consumption and Export, 1980-2006

Year	Oil production (Thousand barrels per day)	Oil consumption (Thousand barrels per day)	Oil export (Thousand barrels per day)
1980	1,683	590	-
1981	1,402	580	-
1982	2,236	660	-
1983	2,46	785	-
1984	2,196	765	-
1985	2,272	790	-
1986	2,044	830	1,385
1987	2,313	865	1,72
1988	2,253	870	1,64
1989	2,831	965	2,12
1990	3,113	1,003	2,22
1991	3,358	1,075	2,42
1992	3,476	1,113	2,517
1993	3,591	1,138	2,596
1994	3,672	1,205	2,635
1995	3,709	1,185	2,621
1996	3,748	1,239	2,63
1997	3,728	1,277	2,587
1998	3,703	1,27	2,512
1999	3,621	1,31	2,531
2000	3,765	1,319	2,309
2001	3,8	1,397	2,229
2002	3,524	1,386	2,094
2003	3,833	1,426	2,296
2004	4,104	1,489	2,556
2005	4,239	1,613	2,497
2006	4,149	1,763	2,54

Table 4: Iranian oil production, consumption and export, 1980-2006

Source: Energy Information Administration. Retrieved from <https://www.eia.gov/beta/international/country.cfm?iso=IRN> (The table is my compilation.)

After the Revolution, the new regime did not become successful in oil production because of lack of advance technologies and investment. Although the new regime and the West adopted hostile attitude and rhetoric towards each other, Halliday believes that the world cannot give up Iran because of oil and gas deals and he adds

“if the oil and gas deals are not done, the world energy market will rebound”.⁹² After the Revolution, despite US sanctions, Iran exported its oil mainly to Japan, China, South Korea, Taiwan and Europe.⁹³ However, the nuclear crisis and the following sanction of the UN Security council had an impact on oil industry and Iran’s oil export started to decline and Iran could not achieved their plans which aimed to double national oil production to more than 7 million barrels by 2015.⁹⁴ At the end, the nuclear crisis and sanctions started a hard period for Iranian energy sector and Iranian oil sector could not return its prosperity as it was during the Shah period.

2.2. The development of Iranian gas sector

Iran also gradually discovered its other energy capacities in the early periods. While oil was reaching its peak, according to Carey, natural gas also began to gain importance in industrial development and the government took its financial and other benefits into consideration in 1950s.⁹⁵ The associated gas produced in the oil fields was flared until 1970s, as it was considered as a byproduct of oil as indicated in Figure 2.⁹⁶ This perception also prevented discovery of rich gas fields in Iran until the world interest on gas utilization for energy. In order to search for gas fields and enhance the gas industry, the National Iranian Gas Company was established by the National Iranian Oil Company in 1965.⁹⁷ In contrast to oil, Iranian gas industry was improved by assistance of the Soviet Union. In 1966, Iran made an agreement with the Soviet Union to transfer its gas up to 1 billion cubic feet per day in return of

⁹²Halliday, F. (2001). Iran and the Middle East: Foreign Policy and Domestic Change. *Middle East Report*. No.220. p. 44.

⁹³Molavi, R. (2009). *Oil and Gas Privatisation in Iran*. UK: Ithaca Press. p. 144.

⁹⁴*Ibid*, p. 143.

⁹⁵Carey, J.P.C. (1974). Iran and Control of its Oil Resources. *Political Science Quarterly*, vol. 89, no. 1, p. 152.

⁹⁶Kuhn, M. (2012). *Enabling the Iranian Gas Export Options: The Destiny of Iranian Energy Relations in a Tripolar Struggle over Energy Security and Geopolitics*. Berlin: Springer, p. 210

⁹⁷Carey, J.P.C. (1974). Iran and Control of its Oil Resources. *Political Science Quarterly*, vol. 89, no. 1, p. 167.

equipment, engineering plant and other assistance provided by the USSR.⁹⁸ The Iranian gas pipeline, which was called as the Iranian Gas Trunkline, began to deliver Iranian gas from the southwest oil fields of the country to Astará, the Soviet Union in 1970.⁹⁹ The capacity of the pipeline was 1.6 million cubic feet per day, by 1975 it brought 328 billion cubic feet gas to the Soviet Union and its revenues was 150 million dollars for the year.¹⁰⁰

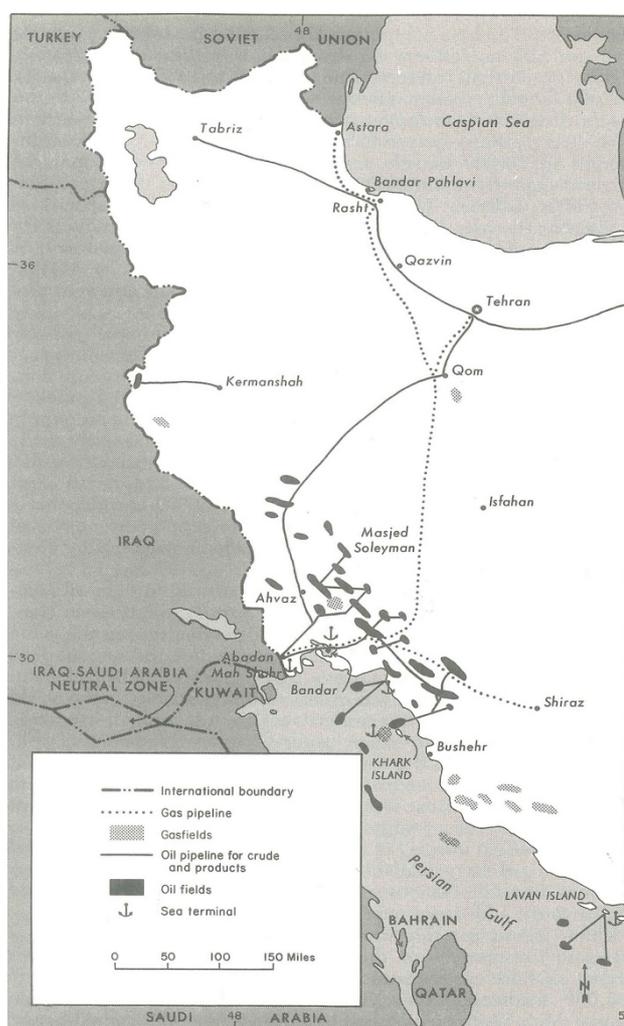


Figure 2: Oil and gas fields and pipelines

Source: Nyrop, R.F. (Eds.). (1978). *Iran: A Country Study*. Washington, D.C.: The American University, p. 302.

⁹⁸Nyrop, R.F. (Eds.). (1978). *Iran: A Country Study*. Washington, D.C.: The American University, p.304.

⁹⁹Nyrop, R.F. (Eds.). (1978). *Iran: A Country Study*. Washington, D.C.: The American University, p.305.

¹⁰⁰*Ibid.*

IGAT project helped to development of gas industry in the country and the government encouraged the use of natural gas. By 1970s, the domestic gas consumption of Iran was about 20-25 percent.¹⁰¹ In addition to domestic consumption, it also supplied 7 billion cubic meters of gas per year to the Soviet Union.¹⁰² Iranian gas industry grew up with the discovery of new gas fields in the mid-1970s. While Iranian gas reserves were 7.5 trillion cubic meters in 1974, it rose to 10.6 trillion cubic meters in 1977.¹⁰³ Iran also began to export LNG in 1970s. This time, a consortium was formed for gas and Iran made an agreement with the American and Belgian companies to find a market for its liquefied gas in 1974.¹⁰⁴ As a result of the signed agreements, Iranian gas was exported to the US, Western Europe and Japan.

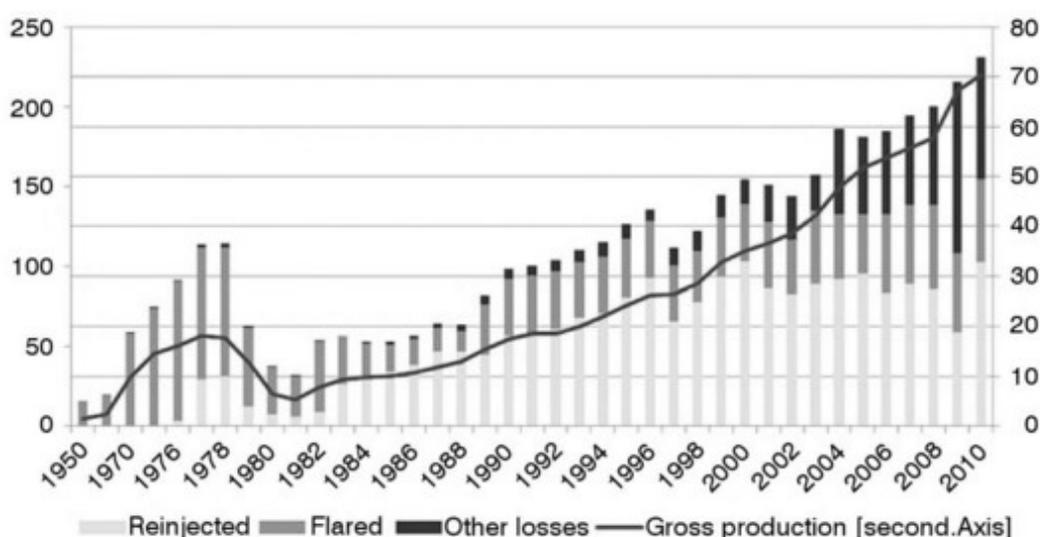


Table 5: Iran's gas production, 1950-2010

Source: Kuhn, M. (2012). *Enabling the Iranian Gas Export Options: The Destiny of Iranian Energy Relations in a Tripolar Struggle over Energy Security and Geopolitics*. Berlin: Springer, p. 210

¹⁰¹Nyrop, R.F. (Eds.). (1978). *Iran: A Country Study*. Washington, D.C.: The American University, p.305.

¹⁰²Carey, J.P.C. (1974). Iran and Control of its Oil Resources. *Political Science Quarterly*, vol. 89, no. 1, p. 169.

¹⁰³Metz, H. C. (1989). *Iran: A Country Study*. Washington, D.C.: U.S. Government Printing Office, p. 162.

¹⁰⁴Nyrop, R.F. (Eds.). (1978). *Iran: A Country Study*. Washington, D.C.: The American University, p.306.

The Shah pushed modernization and industrialization for this reason five-year development plans were prepared as a guideline of Iran's economic development and the major goals for gas industry were increasing gas export, increasing domestic use of gas, building petrochemical plants using gas and re-injecting gas into the oil fields to increase the amount of recoverable crude oil.¹⁰⁵ In this context, the Fifth Plan, which covered between the years of 1973 and 1977, set investment at 36.5 billion dollars and it was allocated for housing, manufacturing, mining, transportation, communication and oil and gas project.¹⁰⁶ Moreover, the Plan emphasized that the gas industry would not be subjected to financial limitations so enhancing of gas industry was prioritized.¹⁰⁷ During his reign, the Shah maintained his efforts and cooperation with foreign countries to enhance gas industry; however it was also cut off when the regime was change in 1979.

The Islamic Revolution of 1979 and following the Iran-Iraq War caused a drop in gas production until 1982, since then it increased gradually as indicated in Figure 3. After the Iran-Iraq War, Iran restarted pipeline projects which was began in the late 1970s and firstly it completed the Kangan-Isfahan and then Isfahan Qom sections of IGAT-2 project for domestic consumption and other refinery and pipeline projects followed the IGAT-2.¹⁰⁸ In 1980, the proven gas reserve of Iran was 14.1 trillion cubic meters and this number has been increased by years.¹⁰⁹ Although Iran held rich gas resources, it could not show its potential due to the isolation of its new regime. In this respect, Tagliapietra identifies Iran as an “elephant in the room” and they believes that it could be a major game changer in international gas market one day

¹⁰⁵Ashraf, P. (2016). Natural Gas Industry in Iran. *Encyclopaedia Iranica*. Retrieved from <http://www.iranicaonline.org/articles/natural-gas-industry-in-iran>

¹⁰⁶Iran Investment and Business Guide: Volume 1, Strategic and Practical Information. (2016) USA: International Business Publications, p. 88.

¹⁰⁷Nyrop, R.F. (Eds.). (1978). *Iran: A Country Study*. Washington, D.C.: The American University, p.306.

¹⁰⁸Ashraf, P. (2016). Natural Gas Industry in Iran. *Encyclopaedia Iranica*. Retrieved from <http://www.iranicaonline.org/articles/natural-gas-industry-in-iran>

¹⁰⁹*Ibid.*

and they explains its current situation with the political relations between Iran and the West.¹¹⁰ After the Iran-Iraq War, in 1990, Iran's the richest gas field South Pars, which belongs 35 percent of Iran's total natural gas, was discovered by the National Iranian Oil Company.¹¹¹ The first natural gas production in the South Pars was started with 10 billion cubic meters in 2002 and it increased to 102 billion cubic meter in the following years. Although the South Pars is currently used for the domestic market, it is planning to become Iran's future gas export field, according to Tagliapietra.¹¹²



Figure 3: Key Petroleum and Gas Sector Facilities

Source: Iran Country Profile (2004). Retrieved from <http://www.lib.utexas.edu/maps/iran.html>

¹¹⁰Tagliapietra, S. (2014). Iran after the (Potential) Nuclear Deal: What's Next for the Country's Natural Gas Market?. *Fondazione Eni Enrico Mattei*. p. 3.

¹¹¹Tagliapietra, S. (2014). Iran after the (Potential) Nuclear Deal: What's Next for the Country's Natural Gas Market?. *Fondazione Eni Enrico Mattei*. p. 6.

¹¹²*Ibid.*

By 2000s, Iran holds 16 percent of the entire world's reserves of natural gas with 940 trillion cubic feet, the other state which holds larger reserve was Russia with 1,680 tcf of natural gas reserves.¹¹³ However, despite its large reserves, it could not be a major gas exporter. Iran first began produce gas over 30 years ago, however, for Tagliapietra, it failed to develop its natural gas industry due to the lack of an organized plan until the late 1990s.¹¹⁴ Iranian gas gained importance especially after 1980s and Iranian gas took a place in its energy policy, along with oil, as the country's energy consumption increased.¹¹⁵

¹¹³Molavi, R. (2009). *Oil and Gas Privatisation in Iran*. UK: Ithaca Press. p. 150.

¹¹⁴Tagliapietra, S. (2014). Iran after the (Potential) Nuclear Deal: What's Next for the Country's Natural Gas Market?. *Fondazione Eni Enrico Mattei*. p. 8.

¹¹⁵*Ibid*, p. 9.

Iranian Gas Production, Consumption and Export, 1980-2006

Year	Production (Billion Cubic Feet)	Consumption (Billion Cubic Feet)	Gas Export (Billion Cubic Feet)
1980	–	232	–
1981	–	155	–
1982	–	200	–
1983	–	310	–
1984	–	476	–
1985	–	600	–
1986	–	536	–
1987	–	565	–
1988	–	706	–
1989	–	784	–
1990	1,628	837	0
1991	2,03	811	107
1992	2,055	883	0
1993	2,119	938	18
1994	2,336	1,123	0
1995	2,671	1,243	3.5
1996	3,009	1,416	3.5
1997	2,917	1,663	0
1998	3,143	1,828	0
1999	3,623	2,112	0
2000	3,871	2,221	0
2001	3,927	2,478	4.2
2002	4,273	2,798	24
2003	4,556	2,91	124
2004	4,768	3,021	126
2005	5,354	3,707	153
2006	5,926	3,839	201

Table 6: Iranian gas production, consumption and export, 1980-2006

Source: Energy Information Administration Retrieved from <https://www.eia.gov/beta/international/country.cfm?iso=IRN> (The table is my compilation.)

Iranian gas production began to increase gradually after 1990s, as indicated in Table 6, however the international sanctions and Iran’s isolation from the world posed an obstacle for the development of Iran’s natural gas sector. On the other hand, for Tagliapietra, Iran’s natural gas production has equaled to the gas consumption of the country since 1990s.¹¹⁶ Its consumption so much increased that Iran began to import gas in 1997 mainly from Turkmenistan and on the other hand Iran could only

¹¹⁶Tagliapietra, S. (2014). Iran after the (Potential) Nuclear Deal: What’s Next for the Country’s Natural Gas Market?. *Fondazione Eni Enrico Mattei*. p. 11.

exported its gas to Turkey and Azerbaijan in a moderate scale before the sanctions.¹¹⁷ Turkey became the only country that exported significant volume of gas from Iran and their gas trade initiated in 1990s by constructing the Tabriz-Ankara Pipeline and two countries' gas trade amounted to 8.4 billion cubic meter in 2011.¹¹⁸ In addition to Turkey, Azerbaijan was another importer of the Iranian gas. As a result of an agreement signed in 2004, Iran started to export its 0.25 billion cubic meter gas to Azerbaijani enclave Nakhchivan by using the historic IGAT I pipeline. On the other hand, Iran was also seeking new trade agreement with other countries like Oman, the United Arab Emirates, Pakistan and India, however Iran could not export its gas because of either disagreements on pricing formula or some political and security reasons. In the early 2000s, the nuclear crisis attracted attentions to Iran and the West's suspicions on Iran's nuclear activities increased the tension between the West and Iran and this political standoff suspended the projects on Iranian natural gas. Hence, while Iranian officials expected the country would become a major gas exporter¹¹⁹, the plans of Tehran was unrealized and its ambitious failed because of the disagreement on pricing formula and the political standoff of Iran.

2.3. The history of Iran's nuclear program

The seeds of Iranian nuclear program were sowed in late 1950s and Iran took concrete steps for establishing its nuclear program. Despite the fact that Iran's nuclear activities are tried to be prevented by the West today, its nuclear program was launched through the assistance of the Western powers ironically. In 1957, Iran signed a nuclear cooperation agreement with the USA which provided technical assistance for research and uranium enrichment.¹²⁰ In late 1960s, the Tehran Nuclear Research Center and first research reactor was established and operate. At the same

¹¹⁷Jalilvand, D.R. (2013). *Iran's gas exports: can past failure become future success?* Oxford Institute for Energy Studies. p. 2.

¹¹⁸*Ibid*, p. 4.

¹¹⁹*Ibid*,. p. 6.

¹²⁰Albright, D. (2005). Timeline of Iran's Path to Nuclear Weapons. In J.S. Yaphe and C. D. Lutes (Ed.), *Reassessing the Implication of a Nuclear-Armed Iran*. Washington D.C.: Institute for National Strategic Studies National Defense University, p. 49.

time, Iran also signed the Nuclear Non-Proliferation Treaty, agreeing never use its nuclear program for the production of nuclear weapon and it was entered into force in 1970.¹²¹ Iran bought eight reactors, built a power reactor at Bushehr and it established two reactors at Darkhovin through the assistance of the US, Germany and France by the mid-1970s.¹²² The Shah, in 1974, as a part of his modernization policy, he paid utmost attention to the nuclear program, he founded the Atomic Energy Agency of Iran and he also remarked that “Iran would produce 23,000 megawatts nuclear power by the end of the century”.¹²³ In line with this purpose, in addition to the agreements with the West, Iran also made a purchase agreement with the South Africa and it bought yellowcake, which is a solid form of uranium oxide, for uranium enrichment, in return it financed an enrichment plant in the South Africa.¹²⁴ The Shah was determined to improve an indigenous nuclear technology in Iran and he claimed that it would be used for peaceful purposes. In other respects, Özdamar and Özcan refers to oil prices of 1970s and they believes that Iranian government invested more in nuclear energy since oil prices was so high during that period.¹²⁵ In 1978, Iran and the US signed a Nuclear Energy Agreement which aimed at facilitating the cooperation between two countries in terms of the nuclear activities.¹²⁶ By the end of 1970s, one nuclear reactor in Bushehr was 90 percent completed and second one was 50 percent.¹²⁷ However, all nuclear agreements with

¹²¹*Ibid.*

¹²²Bahgat, G. (2006). Nuclear Proliferation: The Islamic Republic of Iran. *Iran Studies*, Vol. 39, No.3, p. 308-309.

¹²³Albright, D. (2005). Timeline of Iran’s Path to Nuclear Weapons. In J.S. Yaphe and C. D. Lutes (Ed.), *Reassessing the Implication of a Nuclear-Armed Iran*. Washington D.C.: Institute for National Strategic Studies National Defense University, p. 49.

¹²⁴Bahgat, G. (2006). Nuclear Proliferation: The Islamic Republic of Iran. *Iran Studies*, Vol. 39, No.3, p. 308-309.

¹²⁵Özcan, N.A. and Özdamar, Ö. (2009). Iran’s Nuclear Program and the Future of U.S.-Iranian Relations. *Middle East Policy*, Vol. 16, No. 1, p. 122.

¹²⁶*Ibid.*

¹²⁷*Ibid.*

the US were abolished and Iranian nuclear program came to a halt for a while when Mohammad Reza Shah was overthrown by the Islamic Revolution of 1979.

The new leader of Iran, Ayatollah Khomeini had announced that the nuclear activities was immoral, and the first prime minister of the new regime Mehdi Bazargan stopped projects by claiming that “Iran did not need nuclear energy”¹²⁸, but these remarks could not avoid Iran from developing its nuclear activities in following years.¹²⁹ On the other hand, as the Revolution marked a hostile change in bilateral relations between Iran and the West, the US cut its assistance for the nuclear program of Iran and it considered its nuclear activities as a threat. In addition to the regime change, another factor that had an impact on nuclear activities of Iran was the Iran-Iraq War of 1980. During the war, Iran’s nuclear reactors and research centers was bombed and damaged by Iraq.¹³⁰ The War also made Khomeini change his mind on nuclear issue because Iraq pursued a nuclear program. On the other hand, Iran’s energy, especially electricity needs increased during the War and the government decided to restart its nuclear activities in 1984, so they opened a nuclear research center in Isfahan.¹³¹ After the Revolution, Iran’s nuclear program was supported by Russia instead of the US, nuclear cooperation agreement was made with Russia and they signed a contract to complete Bushehr reactor in 1995.¹³² In addition to Russia, China also signed a cooperation agreement but, soon afterwards; it halted its nuclear assistant to Iran because of the threat of US sanctions.

As might be expected, the new cooperation on nuclear program between Iran and Russia was not welcomed by the US as it considered their cooperation as a threat to

¹²⁸Özcan, N.A. and Özdamar, Ö. (2009). Iran’s Nuclear Program and the Future of U.S.-Iranian Relations. *Middle East Policy*, Vol. 16, No. 1, p. 123.

¹²⁹Bahgat, G. (2005). Nuclear Proliferation in the Middle East: Iran and Israel. *Contemporary Security Policy*, Vol. 26, No.1, p.32.

¹³⁰Özcan, N.A. and Özdamar, Ö. (2009). Iran’s Nuclear Program and the Future of U.S.-Iranian Relations. *Middle East Policy*, Vol. 16, No. 1, p. 123.

¹³¹Albright, D. (2005). Timeline of Iran’s Path to Nuclear Weapons. In J.S. Yaphe and C. D. Lutes (Ed.), *Reassessing the Implication of a Nuclear-Armed Iran*. Washington D.C.: Institute for National Strategic Studies National Defense University, p. 49.

¹³²*Ibid.*

its power in the region. The US was always suspicious on Iran's ambition for nuclear program and the US and Israeli officials believed that Iran was developing nuclear weapon under the name of civil nuclear program although Iran denied allegations.¹³³ Thereupon, the US imposed new sanctions on Iran regarding the nuclear activities in addition to various sanctions applied from the early period of the Revolution.¹³⁴ In 1996, President Bill Clinton signed and declared the bill, which was also called as the Iran-Libya Sanctions Act, imposing sanctions on Iran and Libya as a part of their fight against terrorism.¹³⁵ Moreover, the Republican Senator Alfonse M. D'Amato states "This bill will help cut the economic lifeline of Iran and Libya by stopping foreign investment in their energy industry".¹³⁶ The bill proposed the imposition of sanctions on companies which invest more than 20 million dollars annually in the Iranian oil and gas industries.¹³⁷ While the US and Israel were disturbed by the nuclear activities of Iran, the existence of nuclear Israel which was not a signatory of Non-Proliferation Treaty, was also annoying for Iran in the region. According Bahgat, one of the underlying causes of Iran's nuclear ambition was the presence of countries which have nuclear powers such as Israel and Pakistan and its turbulent neighborhoods such as Iraq.¹³⁸ By the end of 1990s, the president of the time Mohammad Khatami expressed his concerns on Israel's nuclear program and

¹³³Iran Nuclear Contract with Russia is Due. (8 January 1995). *The New York Times*. Retrieved from <http://www.nytimes.com/1995/01/08/world/iran-nuclear-contract-with-russia-is-due.html>

¹³⁴Bahgat, G. (2005). Nuclear Proliferation in the Middle East: Iran and Israel. *Contemporary Security Policy*, Vol. 26, No.1, p.32.

¹³⁵Clinton, A.J. (5 August 1996) Remarks on Signing the Iran and Libya Sanctions Act of 1996 and an Exchange with Reporters. Online by Gerhard Peters and John T. Woolley. *The American Presidency Project*. Retrieved from <http://www.presidency.ucsb.edu/ws/index.php?pid=53160#axzz1rCW0GB2A>

¹³⁶Gray, J. (24 July 1996). Foreign Investing in Libya or in Iran Face U.S. Sanctions. *The New York Times*. Retrieved from <http://www.nytimes.com/1996/07/24/world/foreigners-investing-in-libya-or-in-iran-face-us-sanctions.html>

¹³⁷Bahgat, G. (2005). Nuclear Proliferation in the Middle East: Iran and Israel. *Contemporary Security Policy*, Vol. 26, No.1, p.33.

¹³⁸*Ibid*, p.31.

supported a proposal for ‘Nuclear-Free Mideast’ which was initiated by Syria.¹³⁹ The mutual distrust and hostility between Iran and the US also continued and the crisis broke out between Iran and the West, in 2000s.

Since the late 1990s, American officials made an effort to convince the officials of the International Atomic Energy Agency and the United Nations regarding nuclear ambitions of Iran. Although, the UNSC discussed the issue, the international community did not reach a consensus on enforcing sanctions on Iran regarding its nuclear activities. For Bahgat, there were two main reasons behind this situation: first, two permanent members of the Security Council, Russia and China had close diplomatic, economic and military relations with Iran and second, sanctions on Iran would increase oil prices and this would also have an impact on global economy.¹⁴⁰ However, the nuclear crisis began with the release of documents of Iran’s nuclear program which previously was not known by the United Nations. In 2002, the Mujahedin-e Khalq, an opposition group, accused Iran on hiding its nuclear plants and share documents on its secret plants and then the satellite photos of Iran’s secret uranium enrichment plant Natanz and a heavy water facility in Arak was revealed in the media.¹⁴¹

¹³⁹Sinha S. and Beachy, S. C. (2 April 2015). Timeline on Iran’s Nuclear Program. *The New York Times*. Retrieved from http://www.nytimes.com/interactive/2014/11/20/world/middleeast/Iran-nuclear-timeline.html?_r=1##/time243_10809

¹⁴⁰Bahgat, G. (2005). Nuclear Proliferation in the Middle East: Iran and Israel. *Contemporary Security Policy*, Vol. 26, No.1, p.33.

¹⁴¹Özcan, N.A. and Özdamar, Ö. (2009). Iran’s Nuclear Program and the Future of U.S.-Iranian Relations. *Middle East Policy*, Vol. 16, No. 1, p. 123.

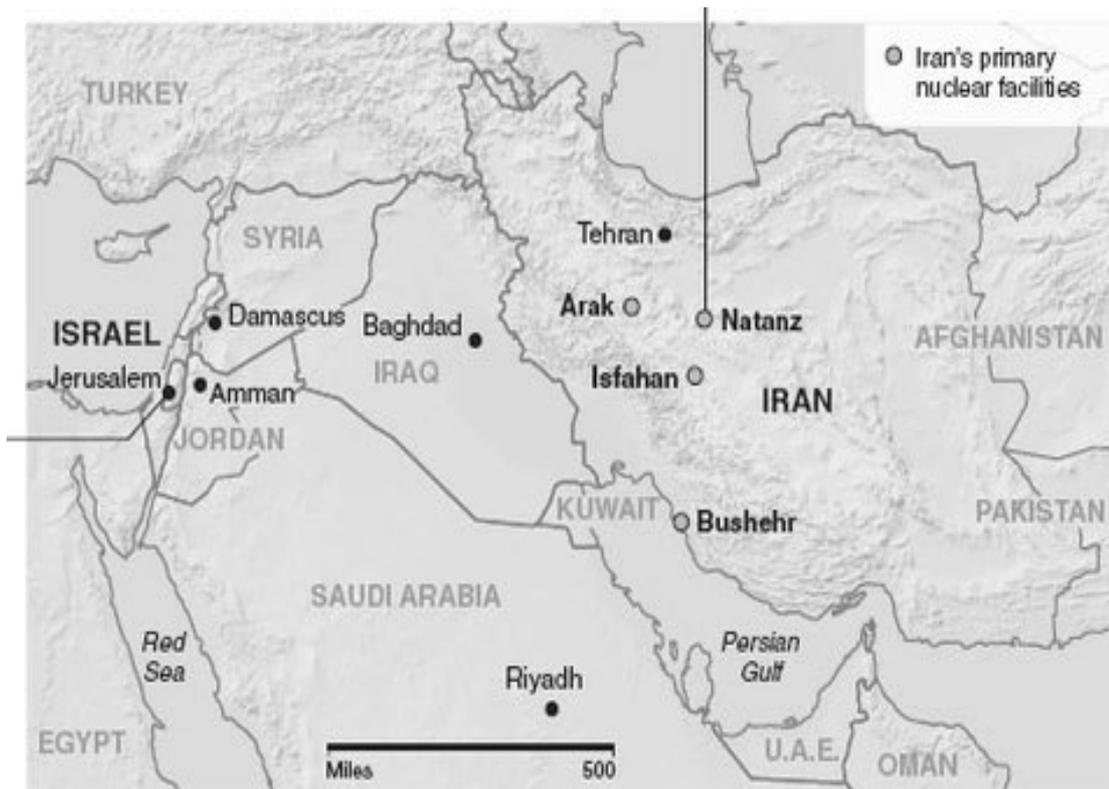


Figure 4: Iran's primary nuclear facilities

Source: Sinha S. and Beachy, S. C. (2 April 2015). Timeline on Iran's Nuclear Program. *The New York Times*.

In response to accusations, Iran announced that it implemented a peaceful nuclear program and it allowed the IAEA for inspections.¹⁴² Besides, Iran's ambassador to UN of that time, Javad Zarif denied accusations and in an interview he said "We do have a right to have nuclear energy for peaceful purposes. And that we have asserted very forcefully. And we will continue to carry out our research and our activities in the area of nuclear technology for peaceful purposes".¹⁴³ Despite Iranian officials' denial, according to data of EIA, Iran did not generate electricity by using its nuclear power until 2011, so this situation was creating questions marks in minds about the

¹⁴²Factbox: Timeline of the Iranian Nuclear Crisis. (11 August 2005). *Radio Free Europe Radio Liberty (RFE/RL)*. Retrieved from <http://www.rferl.org/featuresarticle/2005/8/19C76894-2A3A-49D7-96A5-02039F66FD20.html>

¹⁴³Iranian diplomat denies nuclear weapons program. (13 December 2002). *CNN*. Retrieved from <http://edition.cnn.com/2002/WORLD/meast/12/13/zarif.transcript/index.html>

purpose of nuclear activities.¹⁴⁴ In 2003, Iran suspended its nuclear program, meanwhile the inspectors of IAEA concluded their investigations and they found traces of highly enriched uranium in the Natanz plant.¹⁴⁵ As Iran failed to report its nuclear activities, the nuclear talks between Iran and EU-3 countries including Britain, France and Germany were started and they requested Iran to stop enriching uranium and to sign additional protocol to the NPT in order to clarify uncertainties.¹⁴⁶ On the other hand the US insisted that Iran engaged in nuclear activities to produce nuclear weapons as they have large fossil-fuel reserves so they did not need nuclear energy.¹⁴⁷ However, IAEA Director General of that time Muhammad el-Baradei said “We don't have proof so far that they have done any weaponization nor have we seen that they have enriched uranium to the military level, [but] if you ask me whether they have the know-how to develop the highly enriched uranium, the answer is yes”, so the international community could not prove allegations despite traces of enriched uranium that exceed the level for energy production.¹⁴⁸ In 2003, Iran signed the Additional Protocol in return the Europe offered economic concessions if Iran cooperated with the IAEA, and it also signed an agreement to suspend uranium enrichment at the end of nuclear talks with EU-3 in Paris, in 2004.¹⁴⁹ However, Iran violated the Agreement and it declared that they would resume their nuclear activities. President Khatami stated “We will not give up

¹⁴⁴U.S. Energy Information Administration. Nuclear Electricity Net Generation 2014. Retrieved from <http://www.eia.gov>

¹⁴⁵Sinha S. and Beachy, S. C. (2 April 2015). Timeline on Iran's Nuclear Program. *The New York Times*. Retrieved from http://www.nytimes.com/interactive/2014/11/20/world/middleeast/Iran-nuclear-timeline.html?_r=1##/time243_10809

¹⁴⁶Aghazadeh, M. (2013). A Historical Overview of Sanctions on Iran and Iran's Nuclear Programme. *Journal of Academic Science*, Vol. 56, p. 143.

¹⁴⁷Özcan, N.A. and Özdamar, Ö. (2009). Iran's Nuclear Program and the Future of U.S.-Iranian Relations. *Middle East Policy*, Vol. 16, No. 1, p. 123.

¹⁴⁸McMahon, R. (14 May 2004). Iran: IAEA Chief says no sign Tehran has weaponized uranium, but work remains. *Radio Free Europe Radio Liberty (RFE/RL)*. Retrieved from <http://www.rferl.org/content/article/1052796.html>

¹⁴⁹*Ibid.*

peaceful nuclear technology”.¹⁵⁰ Despite all diplomatic efforts, Iran rejected the proposal of EU-3 which included political and economic cooperation and the talks were temporarily stoooped. Within this period, Mahmoud Ahmadinejad were elected as a new president of Iran in 2005 and he remarked that they would continue to cooperate with the IAEA but the process did not develop as Ahmadinejad said. A year later, the IAEA, in its report, enumerated its concerns on Iran’s nuclear activities and it stated that “the Agency is unable to make progress in its efforts to provide assurance about the absence of undeclared nuclear material and activities in Iran”.¹⁵¹ The same year, Iran broke the seal of IAEA in Natanz facility and resumed its nuclear researches and uranium enrichment.¹⁵² In response to Iran’s illegal use of Natanz facility, the IAEA brought the issue into the UN Security Council and the resolution of 1737 that made a call for suspension of its nuclear activities and imposed sanctions on Iran and was approved in 2006.¹⁵³ The Resolution of the Security Council met with reactions in Tehran. While Ahmadinejad describes the Resolution just as “a piece of paper”, the government spokesman Gholam Hussein Elhan stated that it was based on imagination.¹⁵⁴ Although the Iranian government underestimated the Resolution, the enacted sanctions had an severe impact on Iranian energy sector and economy by halting economic interactions between Iran and the West. Besides, the accusation on Iran’s nuclear program linked to a bad reputation of Iran and it has been recognized as an unreliable and aggressive state.

¹⁵⁰Iran ‘will stick to nuclear plan’. (9 February 2005). *BBC News*. Retrieved from http://news.bbc.co.uk/2/hi/middle_east/4252019.stm

¹⁵¹GOV72006/27, Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran (2006). International Atomic Energy Agency.

¹⁵²Sinha S. and Beachy, S. C. (2 April 2015). Timeline on Iran’s Nuclear Program. *The New York Times*. Retrieved from http://www.nytimes.com/interactive/2014/11/20/world/middleeast/Iran-nuclear-timeline.html?_r=1#/#time243_10809

¹⁵³Gootman, E. (24 December 2006). Security Council approves sanctions against Iran over Nuclear Program. *The New York Times*. Retrieved from <http://www.nytimes.com/2006/12/24/world/24nations.html>

¹⁵⁴Iran remains defiant following UN vote. (25 December 2006). *Radio Free Europe Radio Liberty (RFE/RL)*. Retrieved from <http://www.rferl.org/content/article/1073668.html>

2.4. Conclusion

Discovery of oil inaugurated a new era for Iran in 1990s. The country became an attractive center for foreign powers with its reach resources. Discovery and production of oil by the British led to an absolute control of the Great Britain over Iranian oil industry in the early period of Iranian energy policy. Afterwards, the US also became a major player in Iranian energy industry. Despite Iran held ownership of resources, it had not had a say in management of resources and it was underpaid. It was believed that country could not be independent unless it controlled oil industry. Hence, exploitation of country's resources triggered the attempt of nationalization of oil industry in 1950s. However, the call of nationalization of oil industry was eliminated by the US and British backed coup as it was not complied with the interests of the West and they maintained their influence until the Iranian Revolution of 1979. As oil industry developed and growth, the country's oil and gas production, exportation and consumption also increased, and Iranian economy became dependent on mainly oil and gas industry. The revenues of oil and gas industries composed 18.6 percent of Iran's gross domestic product, 48 percent of its central budget reserves and 73 percent of its total export earnings by 1970.¹⁵⁵ According to Mahdavy, Iran could be examined as a "rentier state" by 1970s, because its economy dependent on external rents earned from oil and gas industry.¹⁵⁶ The Shah believed that Iran could be modernized through industrialization and, oil and gas industries were integral part of this purpose. Shah paved the way for Iran's dependency on foreign powers, while he desired to increase Iran's oil and gas profits and improve energy sector. However, all agreements and projects that were made with foreign powers regarding oil, gas and nuclear program were ended up with the Islamic Revolution of Iran in 1979, when Iran began to be recognized as a prominent country in energy. The new Islamic Regime turned energy policy upside down, kept foreign powers out of Iranian energy industry and ensured nationalization in all

¹⁵⁵Carey, J.P.C. (1974). Iran and Control of its Oil Resources. *Political Science Quarterly*, vol. 89, no. 1, p. 173.

¹⁵⁶Mahdavy, H. (1970). The patterns and problems of economic development in rentier states: The case of Iran. In M.A. Cook (Ed.), *Studies in the economic history of the Middle East: from the rise of Islam to the present day*. London: Oxford University Press. p. 432.

sectors. The new regime brought an end to foreign hegemony over Iranian energy sectors. Following the Revolution, the worsening of the bilateral relations between the West and Iran and the Iran-Iraq War became a beginning of a hard times for Iran. While the country's energy demand increased, the oil refineries of the country was damaged as a result of the War and the US sanctions resulted in the hostage crisis blocked foreign investment in the country, so the energy supply remained limited because of aging refineries, sanctions and economic constraints. Although the country holds the world's fourth largest proved oil reserves and the world's second largest natural gas reserves, it could be neither a major oil exporter, nor natural gas exporter after the Islamic Revolution of 1979. In addition to the policies of the new regime, the nuclear activities of Iran also led to discussions and fear in the international arena. In the early 2000s, the reveal of documents regarding Iranian nuclear activities started allegations on Iran's nuclear activities and the West, especially the US accused Iran of producing nuclear weapon although it was a signatory of the Nuclear Non-Proliferation Treaty. Despite the fact that IAEA's investigations could not reach the concrete findings, uncompromising approach of Ahmadinejad government ended up with sanctions for the country. The nuclear crisis and the UN sanctions imposed new burdens on Iran's economy and energy sectors. Following chapter analyzes the impacts of sanctions over the Iranian energy sectors.

CHAPTER 3

IRANIAN ENERGY POLICY UNDER SANCTIONS 2006-2015

This chapter analyzes Iranian energy policy and energy sectors under the UN sanctions imposed on Iran's energy sectors as a result of its nuclear activities. The chapter provides an outlook to observe the impacts of sanctions over Iranian energy sectors including oil, gas and nuclear. The history of sanctions imposed on Iran date back to the beginning of the new regime and the major sanctions were enforced by the US, EU and UN over the years. Although the sanctions became an ongoing curse of the new regime, the objectives of sanctions differed from each other. While the first sanctions imposed by the US aimed at preventing Iran's support of terrorism, the sanctions of 2000s targeted Iran's nuclear activities ensuring that its nuclear program is for civilian use. While the EU sanctions blocked economic activities between Iran and European countries, the UN sanctions had larger impact on Iranian economy as it is binding on all UN member states. The Iranian energy sector were heavily affected by the sanctions because the sanctions mainly banned export and import of goods and technology. Hence, the sanctions constrained Iran from selling its energy resources and it also hindered development of industry due to the lack of technology. The sanctions mainly targeted Iran's energy sector because it was regarded as potential contributor to "proliferation-sensitive nuclear activities" of Iran.¹⁵⁷ Prior to 2005, the energy sector constituted approximately 20 percent of Iran's GDP, however this figure has declined over the past decades because of sanctions.¹⁵⁸ Thus, Iranian energy sector has suffered from the sanctions and it could not achieve its potential despite its capacity. During the period of sanctions, Iran's oil and gas export did not stop but its main importer countries were Asian countries. In spite of

¹⁵⁷Katzman, K. (2016). Iran Sanctions. *Congressional Research Service*.p.37.

¹⁵⁸*Ibid*, p.9.

the fact that it maintained its economic transaction with Asian countries in a limited way, the country was isolated from the global markets due to the pressure of nuclear sanctions.

3.1. Iran under sanctions

The UN sanctions were not the first sanctions that Iran faced indeed. Iran was suffering from sanctions since the beginning of the new regime in 1979. However, the UN sanctions had a larger impact on Iranian economy and energy sector because it was binding for many states including China, France, Germany, the Russian Federation, the United Kingdom and the United State. Katzman states “The objectives of the U.S. sanctions have evolved over time” because he believes that the sanctions imposed in 1980s and 1990s were enforced to prevent Iran supporting acts of terrorism in the region, while the sanctions of mid-2000s were put into force to ensure that Iran’s nuclear program is for peaceful purposes.¹⁵⁹ The first sanctions were imposed by the USA in 1979 as a result of the hostage crisis in which Iranian students took the US Embassy and diplomats’ hostage.¹⁶⁰ Iranian products could not be imported to the USA within the context of the US trade embargo. The hostage crisis related sanctions were lifted upon settlement of the hostage crisis in 1981. However, the US began to impose sanctions against Iran in the mid-1980s on the grounds that Iran supported regional groups committing acts of international terrorism by designating Iran as a “state sponsor of terrorism”.¹⁶¹ According to Amuzegar’s article, some American analysts argue that US sanctions have been motivated by US domestic politics more than by an ambition to influence Iran’s policies.¹⁶² Amuzegar claims that Iran’s political behavior posed a threat for American interests which aimed at developing a stable, peaceful and productive

¹⁵⁹Katzman, K. (2016). Iran Sanctions. *Congressional Research Service*.p.1.

¹⁶⁰Factbox: Sanctions imposed on Iran (2 April 2015). Reuters. Retrieved from <http://www.reuters.com/article/us-iran-nuclear-sanctions-factbox-idUSKBN0MT02420150402>

¹⁶¹Katzman, K. (2016). Iran Sanctions. *Congressional Research Service*.p.3.

¹⁶²Amuzegar, J. (1997). Iran’s Economy and the US Sanctions. *Middle East Journal*. Vol. 51, No.2, p. 188.

environment in the Gulf region.¹⁶³ Therefore, the US prevented Iran from acquiring military equipment and technology and imposed economic cost to protect its national interest in the Gulf region. Hereunder, the US banned its financial assistance and arms sales to Iran. In 1995, the US issued an executive order which prevented US Companies from investing and trading Iranian oil and gas.¹⁶⁴ The provisions of the Iran Sanctions Act of 1996 have played major role in US sanctions against Iran's energy sector and it was expanded to other Iranian industries over years. According to Katzman, ISA was the first major extra-territorial sanctions imposed on Iran which allows the US to impose penalties against third country firms.¹⁶⁵ ISA violated Iranian energy sectors. First, it enacted a requirement which imposes sanction on companies that make an investment of more than \$20 million in Iranian energy sector including construction, upgrading, and expansions of energy projects.¹⁶⁶ Second, ISA banned sale of weapon of mass destruction and nuclear related technologies to Iran.¹⁶⁷ Third, selling gasoline or related equipment and services to Iran was sanctioned under ISA and finally, transport of Iranian oil was prohibited.¹⁶⁸ The provisions of act also retained foreign banks from accessing existing account of opening new accounts if it is operating for oil related transaction with Iran.¹⁶⁹

The entities or person, who violated requirements of ISA, was sanctioned as indicated in the Table 7. For Amuzegar, the strict sanction policy of the US made the leaders more belligerent instead of forcing Iran to transform itself from a hostile and repressive regime and gave Iran little room to maneuver changing itself.¹⁷⁰

¹⁶³*Ibid.*

¹⁶⁴Factbox: Sanctions imposed on Iran (2 April 2015). Reuters. Retrieved from <http://www.reuters.com/article/us-iran-nuclear-sanctions-factbox-idUSKBN0MT02420150402>

¹⁶⁵Katzman, K. (2016). Iran Sanctions. *Congressional Research Service*.p.9.

¹⁶⁶*Ibid*, p.10.

¹⁶⁷*Ibid.*

¹⁶⁸*Ibid*, p.11.

¹⁶⁹Davenport, K. (2012). Sanctions Tighten on Iran. *Arms Control Today*. Vol. 42, No.6, p. 29.

¹⁷⁰Amuzegar, J. (1997). Iran's Economy and the US Sanctions. *Middle East Journal*. Vol. 51, No.2, p. 196.

Therefore, the economic pressure of the US and deprivation tried to isolate Iran and pushed them to be more uncompromising.

Date	Companies/Country	Status/Comment
May 18, 1998	Total SA (France); Gazprom (Russia); and Petronas (Malaysia)—\$2 billion project to develop South Pars gas field.	Waived. ISA violation determined but sanctions waived in line with U.S.-EU agreement for EU to cooperate on anti-terrorism and anti-proliferation issues, and not to file complaint at the WTO. Then-Secretary of State Albright, in the May 18, 1998, waiver announcement indicated that similar future such projects by EU firms in Iran would not be sanctioned. (http://www.parstimes.com/law/albright_southpars.html).
Sept. 30, 2010	Naftiran Intertrade Co. (NICO), Iran and Switzerland	Sanctioned. For activities to develop Iran's energy sector. <i>Sanctions lifted under JCPOA.</i>
Sept. 30, 2010	Total (France); Statoil (Norway); ENI (Italy); and Royal Dutch Shell	Exempted under ISA "special rule" for pledging to wind down work on Iran energy fields.
Nov. 17, 2010	Inpex (Japan)	Exempted under the Special rule applied for divesting its remaining 10% stake in Azadegan oil field development.
March 29, 2011	Belarusneft (Belarus, subsidiary of Belneftekhim)	Sanctioned. For \$500 million contract with NICO (see above) to develop Jofeir oil field. Other subsidiaries of Belneftekhim were sanctioned in 2007 under E.O. 13405 (Belarus sanctions). <i>Sanctions not lifted under JCPOA.</i>
May 24, 2011	Petrochemical Commercial Company International (PCCI) of Bailiwick of Jersey and Iran; Royal Oyster Group (UAE); Tanker Pacific (Singapore); Allvale Maritime (Liberia); Societe Anonyme Monegasque Et Aeriene (SAMAMA, Monaco); Speedy Ship (UAE/Iran); Associated Shipbroking (Monaco); and Petroleos de Venezuela (PDVSA, Venezuela).	Sanctioned under CISADA amendment to ISA imposing sanctions for selling gasoline to Iran or helping Iran import gasoline. Allvale Maritime and SAMAMA determinations were issued on September 13, 2011, to "clarify" the May 24 determinations that had named Ofer Brothers Group. The two, as well as Tanker Pacific, are affiliated with a Europe-based trust linked to deceased Ofer brother Sami Ofer, and not Ofer Brothers Group based in Israel. Firms named subjected primarily to the financial sanctions provided in ISA. U.S.-based subsidiaries of PDVSA, such as Citgo, were not sanctioned. <i>Sanctions lifted on these firms under JCPOA.</i>
Jan. 12, 2012	Zhuhai Zhenrong Co. (China); Kuo Oil Pte Ltd. (Singapore); FAL Oil Co. (UAE)	Sanctioned. For brokering sales or making sales to Iran of gasoline. <i>Sanctions lifted under JCPOA.</i>
Aug. 12, 2012	Sytrol (Syria)	Sanctioned. For sales of gasoline to Iran. <i>Sanctions remain.</i>
Mar. 14, 2013	Dr. Dimitris Cambis; Impire Shipping; Kish Protection and Indemnity (Iran); and Bimeh Markasi-Central Insurance of Iran (CII, Iran)	Sanctioned under ISA amendments sanctioning owning vessels that transport Iranian oil or providing insurance for the shipments. Treasury sanctions also imposed on eight UAE-based oil traders that concealed the transactions. <i>Sanctions lifted under JCPOA.</i>
April 12, 2013	Tanker Pacific; SAMAMA; and Allvale Maritime	Sanctions lifted. Special rule applied after "reliable assurances" they will not engage in similar activity in the future.
May 31, 2013	Ferland Co. Ltd. (Cyprus and Ukraine)	Sanctioned. For cooperating with National Iranian Tanker Co. to illicitly sell Iranian crude oil. <i>Sanctions lifted under JCPOA.</i>
August 29, 2014	Dettin SPA	Sanctioned. Italy-based company sanctioned for providing goods and services to Iran's petrochemical industry. <i>Sanctions lifted under JCPOA.</i>

Table 7: ISA Sanctions Determinations

Source: Katzman, K. (2016). Iran Sanctions. *Congressional Research Service*.p.20.

The US sanctions were followed by the sanctions of EU countries in 2007 and 2010 in response to concerns about Iran's nuclear program.¹⁷¹ In European Union's factsheet stated that "EU sanctions are meant to persuade Iran to comply with its international obligations and to constrain its development of sensitive technologies in support of its nuclear and missile programs"¹⁷². In this sense, the EU sanctions, in the first stage, froze the assets of entities and persons and it banned export and import of goods and technology related to nuclear enrichment system, along with arms. In addition to materials and technology related with nuclear program, the EU also introduced regulations in 2010 which banned imports of crude oil, petroleum products and natural gas from Iran, together with an export on key equipment and technology for the oil, gas and petrochemical industry.¹⁷³

In addition to banning of oil import, the EU also restrained European countries from transporting Iranian oil to any country, so they were unable to transport Iranian oil as well.¹⁷⁴ The EU also prohibited the import of Iranian natural gas and financing of such activities. Besides, trade in gold, precious metals or diamonds with Iran was banned in 2012, transactions with Iranian banks were prohibited and assets of person and entities linked to Iran's nuclear activity were frozen in light with the US sanctions.¹⁷⁵ Patterson argued that the extraterritorial measures of the US obliged the EU to impose sanction on Iran.¹⁷⁶ In other words, The EU was exposed to the pressure of the US's restriction economic transaction with Iran and it had to introduce measures as a sign of respect this extraterritorial sanctions. Hence, for

¹⁷¹Factbox: Sanctions imposed on Iran (2 April 2015). Reuters. Retrieved from <http://www.reuters.com/article/us-iran-nuclear-sanctions-factbox-idUSKBN0MT02420150402>

¹⁷²Information Note: The European Union and Iran. (17 April 2015). European Union External Action. p. 3. Retrieved from http://eeas.europa.eu/statements/docs/2013/131219_04_en.pdf

¹⁷³Council Regulations No 961/2010 on restrictive measures against Iran and repealing Regulations (EC) No 42372007. (25 October 2010). *European Union*.

¹⁷⁴Davenport, K. (2012). Sanctions Tighten on Iran. *Arms Control Today*. Vol. 42, No.6, p. 30.

¹⁷⁵Factbox: Sanctions imposed on Iran (2 April 2015). Reuters. Retrieved from <http://www.reuters.com/article/us-iran-nuclear-sanctions-factbox-idUSKBN0MT02420150402>

¹⁷⁶Patterson, R. (2013). EU Sanctions on Iran: The European Political Context. *Middle East Policy Council*. No. 1. Retrieved from <http://www.mepc.org/journal/middle-east-policy-archives/eu-sanctions-iran-european-political-context?print>

Patterson the EU sanctions were symbolic or he believes that the cost of sanctions against Iran were insignificant for the union.¹⁷⁷

In addition to the US and EU, the UN Security Council also applied four sets of sanctions in 2006, 2007, 2008 and 2010 against Iran's nuclear activities and they all insisted on Iran's suspension of its nuclear enrichment program. The first set of sanctions, in December 2006, were unanimously adopted by the UN Security Council under the Resolution 1737 and it started to impose sanctions on Iran due to its failure to halt uranium enrichment.¹⁷⁸ Hereunder, the Resolution mainly blocked the import and export of sensitive nuclear material and equipment and froze the assets of persons or entities which supports nuclear activities or the development of nuclear weapon system.¹⁷⁹ The Resolution 1737 announces:

Decides that all States shall take the necessary measures to prevent the supply, sale or transfer directly or indirectly from their territories, or by their nationals or using their flag vessels or aircraft to, or for the use in or benefit of, Iran, and whether or not originating in their territories, of all items, materials, equipment, goods and technology which could contribute to Iran's enrichment-related, reprocessing or heavy water-related activities, or to the development of nuclear weapon delivery systems.¹⁸⁰

Hence, the UN Resolution hindered trade of materials, equipment and technology which could be used in Iran's nuclear activities. In addition to these measures, the Resolution also includes a decision which envisaged freezing the funds, assets and economic resources persons and entities which provide support for Iran's nuclear activities.¹⁸¹ It is stated:

¹⁷⁷Patterson, R. (2013). EU Sanctions on Iran: The European Political Context. *Middle East Policy Council*. No. 1. Retrieved from <http://www.mepc.org/journal/middle-east-policy-archives/eu-sanctions-iran-european-political-context?print>

¹⁷⁸United Nations. (2006). *Security Council Imposes Sanctions on Iran for Failure to Halt Uranium Enrichment, Unanimously Adopting Resolution 1737 (2006)*. Retrieved from <http://www.un.org/press/en/2006/sc8928.doc.htm>

¹⁷⁹Resolution 1737 (2006). United Nations Security Council.

¹⁸⁰*Ibid*, p. 2

¹⁸¹*Ibid*, p. 4

Decides that all States shall freeze the funds, other financial assets and economic resources which are on their territories at the date of adoption of this resolution or at any time thereafter, that are owned or controlled by the persons or entities designated in the Annex, as well as those of additional persons or entities designated by the Security Council or by the Committee as being engaged in, directly associated with or providing support for Iran's proliferation sensitive nuclear activities or the development of nuclear weapon delivery systems (...).¹⁸²

The Resolution assured that the sanctions could only be terminated if Iran complied with obligations and suspended all enrichment, research and development activities, as verified by the IAEA.¹⁸³ Iranian side reacted against the Resolution 1737 and while Iran's United Nations ambassador Javad Zarif was describing the Resolution as "a historical injustice"¹⁸⁴, Iranian President Ahmadinejad called it as "a piece of paper" and he stated that it had a political aim.¹⁸⁵ The second and third sets of sanctions, Resolution 1747 and Resolution 1803, which were adopted in 2007 and 2008, mainly blocked trade of arms and financial transactions with Iran.¹⁸⁶ In Resolution 1747 of 2007, it is stated:

Decides that Iran shall not supply, sell or transfer directly or indirectly from its territory or by its nationals or using its flag vessels or aircraft any arms or related materiel, and that all States shall prohibit the procurement of such items from Iran by their nationals, or using their flag vessels or aircraft, and whether or not originating in the territory of Iran.¹⁸⁷

¹⁸²*Ibid*, p. 4

¹⁸³*Ibid*, p. 7

¹⁸⁴Gootman, E. (24 December 2006). Security Council approves sanctions against Iran over Nuclear Program. *The New York Times*. Retrieved from <http://www.nytimes.com/2006/12/24/world/24nations.html>

¹⁸⁵Iran remains defiant following UN vote. (25 December 2006). *Radio Free Europe Radio Liberty (RFE/RL)*. Retrieved from <http://www.rferl.org/content/article/1073668.html>

¹⁸⁶Laub, Z. (15 July 2015). International Sanctions on Iran. *Council on Foreign Relations*. Retrieved from <http://www.cfr.org/iran/international-sanctions-iran/p20258>

¹⁸⁷Resolution 1747 (2007). United Nations Security Council. p.2

The articles which prohibited transfer of arms and goods are repeated in Resolution 1803 of 2008 and it is added that all states should take measure “to prevent the supply, sale or transfer directly or indirectly from their territories or by their nationals or using their flag vessels or aircraft to, or for use in or benefit of, Iran, and whether or not originating in their territories” of all materials, equipment, good and technology identified in previous resolutions.¹⁸⁸ The fourth and the last set of sanctions was adopted in 2010, by a vote of 12-2, with the objection of Turkey and Brazil and one abstention of Lebanon¹⁸⁹, in order to tightened current sanctions on arm trade and financial transactions and measures to prevent transfer of technology to Iran.¹⁹⁰ According to Katzman, Resolution 1929 was significant as it asserted that the energy, financial and other sectors of Iranian economy support its nuclear program.¹⁹¹ In the Resolution 1929 of 2010, it is stated:

Recognizing that access to diverse, reliable energy is critical for sustainable growth and development, while noting the potential connection between Iran’s revenues derived from its energy sector and the funding of Iran’s proliferation- sensitive nuclear activities, and further noting that chemical process equipment and materials required for the petrochemical industry have much in common with those required for certain sensitive nuclear fuel cycle activities.¹⁹²

Overall the sanctions isolated Iran from the global markets and financial system and the country was deprived of accessing mainly its oil revenues, as the US Treasury Secretary Jacob J. Lew said in 2015.¹⁹³ This statement shows that the sanctions targeted Iran’s energy sector to block its nuclear activities indirectly. Hence, the

¹⁸⁸Resolution 1803 (2008). United Nations Security Council. p.4.

¹⁸⁹Katzman, K. (2016). Iran Sanctions. Congressional Research Service.p.34

¹⁹⁰Resolution 1929 (2010). United Nations Security Council. p.5.

¹⁹¹*Ibid*, p.5.

¹⁹²*Ibid*, p.3.

¹⁹³Lew, J.J. (2015). Remarks of Treasury Secretary Jacob J. Lew to the Washington Institute. *The Washington Institute*. Retrieved from <http://www.washingtoninstitute.org/policy-analysis/view/remarks-of-treasury-secretary-jacob-j.-lew>

sanctions imposed against Iran had a greater impact on the country's economy, especially in Iranian energy sectors as it blocked financial transactions, trade and transfer of technology to Iran.

3.2. Impacts of sanctions on energy sector

Iranian economy, which has lived on mainly energy sectors, suffered a lot from pressure of the sanctions imposed by the Western countries. The country's economy tried to operate under economic pressure of the Western countries. Especially the energy sectors started to be hurt with the US sanctions as it enacted a requirement which imposes sanction on companies that make an investment of more than \$20 million in Iranian energy sector including construction, upgrading, and expansions of energy projects.¹⁹⁴ Hence, the international companies began to stop energy projects in Iranian energy sector because of the sanctions and to avoid antagonizing the US. The sanction retained the international companies, which have been existed in Iranian energy sectors, from funding the projects in Iran.

YEAR	COUNTRY	COMPANY	FIELD	VALUE
1999	France	Elf Aquitaine/Totalfina	Doroud	\$1,000
1999	France & Canada	Elf Aquitaine & Bow Valley	Balal	\$300
1999	United Kingdom & Netherlands	Royal Dutch & Shell	Soroush & Nowruz	\$800
2000	Italy	ENI	South Pars, 4 & 5	\$3,800
2000	Norway	Statoil	Salman	\$850
2000	Norway	Norsk Hydro	Anaran	N/A
2001	United Kingdom	Enterprise Oil	South Pars, 6, 7 & 8	N/A
2001	Sweden	GVA Consultants	Caspian Sea	\$226
2001	Italy	ENI	Darkhovin	\$550-\$1,000
2002	Canada	Sheer Energy	Masjid-e-Soleman	\$80
2002	South Korea	LG Engineering Group	South Pars, 9 & 10	\$1,600
2002	Norway	Statoil	South Pars, 6, 7 & 8	\$300
2002	South Korea	Hyundai	Processing Trains	\$1,000
2002	Spain	Cepsa & OMV*	Cheshmeh-Khosh	\$300
2003	Japan	Japanese Consortium	South Pars, 6, 7 & 8	\$1,200
2004	Japan	Japex, Indonesia Petroleum & Tomen	Azadegan	\$2,500
2004	France & Malaysia	Total & Petronas	Pars LNG	\$2,000
2004	China	Zhuhai Zhenrong Co.	LNG deal	\$20,000

*Cepsa & OMV annulled their contract after three years of negotiations.

Table 8: Foreign investment in Iran's energy sector

Source: Perkovich, G. and Manzanero, S. (2004). Plan B: Using Sanctions to End Iran's Nuclear Program. *Arms Control Today*, Vol.34, No.4, p. 21.

¹⁹⁴Katzman, K. (2016). Iran Sanctions. *Congressional Research Service*.p.10.

As an illustration, the US objection to several oil and gas pipeline construction project from Kazakhstan and Turkmenistan to Europe through Iran had to reduce its scope and these countries could not deliver their energies because the route was passing through Iran.¹⁹⁵ In addition to Kazakhstan and Turkmenistan, Australian and Japanese companies also reconsidered their natural gas project in Iran because of pressure of the US, in short bilateral oil and gas deals involving investments and transfer of technology to Iran was blocked by the US.¹⁹⁶ As Davenport said the sanctions decreased Iran's ability to export its natural resources and isolated it from the global finance system.¹⁹⁷ Due to the US' objections even the World Bank's lending program for Iran was also suspended and Iranian economy suffered from financial pressure.¹⁹⁸ So, it might be said that the US sanctions did not only have an impact on Iranian energy policies but also it indirectly affected the other countries energy policies, which included Iran, as well.

Iranian Oil Production, Consumption and Export, 2006-2014

Year	Oil production (Thousand barrels per day)	Oil consumption (Thousand barrels per day)	Oil export (Thousand barrels per day)
2006	4,149	1,763	2,54
2007	4,039	1,826	2,618
2008	4,178	1,98	2,475
2009	4,178	1,959	2,297
2010	4,243	1,811	2,331
2011	4,215	1,782	2,207
2012	3,52	1,863	2,297
2013	3,194	1,885	–
2014	3,377	NA	–

Table 9: Iranian oil production, consumption and export, 2006-2014

Source: Energy Information Administration. Retrieved from <https://www.eia.gov/beta/international/country.cfm?iso=IRN> (The table is my compilation.)

¹⁹⁵ Amuzegar, J. (1997). Iran's Economy and the US Sanctions. *Middle East Journal*. Vol. 51, No.2, p. 193.

¹⁹⁶ *Ibid*, p. 194.

¹⁹⁷ Davenport, K. (2012). Sanctions Tighten on Iran. *Arms Control Today*. Vol. 42, No.6, p. 29.

¹⁹⁸ Amuzegar, J. (1997). Iran's Economy and the US Sanctions. *Middle East Journal*. Vol. 51, No.2, p. 194.

3.2.1. Oil

In 2006, when the UN's nuclear related sanctions started, oil is constituted 85 percent of Iran's total export revenues and 70 percent of country's total budget revenues in 2007.¹⁹⁹ As oil is an integral part of the country's economy, decline in oil export or oil prices made its economy vulnerable. According to US Energy Information Administration, Iran's oil production has declined because the sanctions had limited Iran's oil and technology trade. The NIOC suffered from lack of capital and technology to develop new field or techniques to sustain its production.²⁰⁰ As the sanctions prevented Iran to sell its oil, crude oil and condensate export has started to drop from 2008 compared with the previous years.²⁰¹ As approximately 50 percent of Iran's revenue comes from oil export, the sanction became a pressure for the country's economy.²⁰² According to the International Monetary Fund's data, cited in the Iran report of the US Energy Information Administration, oil and gas export revenue of Iran was \$118 billion between 2011 and 2012, however this rate dropped by 47 percent to \$63 billion between 2012 and 2013 and it continued to decrease in the following years.²⁰³ During that period, the countries that imported Iranian oil were Japan, South Korea, China and India. Before the sanctions, France, Germany and Italy were also counted among key oil customers of Iran.²⁰⁴ In 2012, the sanctions were not the only reason of decrease in export of Iranian oil because of

¹⁹⁹Crane, K., Lal, R. And Martini, J. (2008). *Iran's Political, Demographic and Economic Vulnerabilities*. USA: The Rand Corporation. p. 74.

²⁰⁰*Ibid*, p. 68.

²⁰¹Iran (19 June 2015). U.S. Energy Information Administration. p. 1. Retrieved from <https://www.eia.gov/beta/international/analysis.cfm?iso=IRN>

²⁰²Perkovich, G. and Manzanero, S. (2004). Plan B: Using Sanctions to End Iran's Nuclear Program. *Arms Control Today*, Vol.34, No.4, p. 22.

²⁰³Iran (19 June 2015). U.S. Energy Information Administration. p. 1. Retrieved from <https://www.eia.gov/beta/international/analysis.cfm?iso=IRN>

²⁰⁴Perkovich, G. and Manzanero, S. (2004). Plan B: Using Sanctions to End Iran's Nuclear Program. *Arms Control Today*, Vol.34, No.4, p. 23.

some contractual dispute between Iran and the countries that continued to import its oil, according to the U.S. Energy Information Administration.²⁰⁵

Country/Bloc	2011 Average	Average (JPA Start - Implementation Day)	Current Levels
European Union (particularly Italy, Spain, and Greece)	600,000	Negligible	Oil imports restarted as of March 2016
China	550,000	410,000	increase to unspecified levels
Japan	325,000	190,000	likely increase
India	320,000	190,000	likely increase
South Korea	230,000	130,000	likely increase
Turkey	200,000	120,000	likely slight increase
South Africa	80,000	Negligible	unclear if imports restart
Malaysia	55,000	Negligible	same as above
Sri Lanka	35,000	Negligible	same as above
Taiwan	35,000	10,000	likely small increase
Singapore	20,000	Negligible	unclear if imports restart
Other	55,000	Negligible	likely small increase
Total	2.5 mbd	1.057 mbd	1.4 mbd estimate

Table 10: Top oil buyers from Iran and reductions (amounts in barrels per day, including condensates)

Source: Katzman, K. (2016). Iran Sanctions. *Congressional Research Service*. p.23.

China's oil import from Iran has led to question marks in minds regarding its commitment to sanction policies as it is the only major player that still maintain its relation in terms of oil trade. China was certified as a waiver country by the US with the condition of meeting reduction standards.²⁰⁶ In other words, the countries could be exempted from sanctions by the US, if they reduced their oil purchase from Iran. Hence, countries including China, India, Malaysia, South Africa, South Korea, Sri Lanka and Turkey could continue to import Iranian oil. According to Downs and Maloney, China and Chinese companies only complies with the Resolution 1929

²⁰⁵Iran (19 June 2015). U.S. Energy Information Administration. p. 7. Retrieved from <https://www.eia.gov/beta/international/analysis.cfm?iso=IRN>

²⁰⁶Davenport, K. (2012). Sanctions Tighten on Iran. *Arms Control Today*. Vol. 42, No.6, p. 29.

which does not contain an explicit restriction on energy trade.²⁰⁷ Iran is the second largest oil supplier to China.²⁰⁸ The authors says: “The sanctions regime targeting Iran is now more muscular than ever, but the gap between the UN Security Council measures and the much harsher sanctions adopted by the United States and other countries has created an uneven playing field in Iran”.²⁰⁹ Hence, Chinese companies continued carefully their economic activities in Iran with a diplomatic sensitivity. However, according to Chang’s article, the US imposed sanctions on Chinese companies from time to time by accusing those selling weapons or weapon related products.²¹⁰ Chang argues that China followed its agenda and it was not willing to hurt its strategic ties with Iran because of its energy and economic interests, for this reason it was opposed to sanctions.²¹¹ During the sanctions, as Western energy companies such as Royal Dutch Shell, Total and Repsol stopped their projects in Iran, Chinese companies took the business and Iran’s Pars Oil and Gas Company made an agreement with China National Offshore Oil Corporation for the North Pars gas field in July 2008.²¹²

²⁰⁷Downs, E., & Maloney, S. (2011, March). Getting China to Sanction Iran: The Chinese-Iranian Oil Connection. *Foreign Affairs*, Vol. 90, No. 2, p. 15.

²⁰⁸Chang, H. P. (2011). China’s Policy toward Iran and the Middle East. *The Journal of East Asian Affairs*. Vol. 25, No.1. p. 10.

²⁰⁹Downs, E., & Maloney, S. (2011, March). Getting China to Sanction Iran: The Chinese-Iranian Oil Connection. *Foreign Affairs*, Vol. 90, No. 2, p. 16.

²¹⁰Chang, H. P. (2011). China’s Policy toward Iran and the Middle East. *The Journal of East Asian Affairs*. Vol. 25, No.1. p. 5.

²¹¹*Ibid*, p. 6.

²¹²*Ibid*, p. 10.

Iranian oil production during the sanctions and world oil prices

Year	Iranian oil production (Thousand Barrels Per Day)	Iranian oil export (Thousand Barrels Per Day)	OPEC oil price (USD)
2006	4149	2540	61.08
2007	4039	2618	69.08
2008	4178	2475	94.45
2009	4178	2297	61.06
2010	4243	2331	77.45
2011	4.215	2207	107.46
2012	3.520	2297	109.45
2013	3.194	–	105.87
2014	3.377	–	96.29
2015	–	–	49.49

Table 11: Iranian oil production during the sanctions and world oil prices, 2006-2015

Source: Energy Information Administration and OPEC Basket Price. *OPEC*. Retrieved from <https://www.eia.gov/beta/international/country.cfm?iso=IRN> and http://www.opec.org/opec_web/en/data_graphs/40.htm (The table is my compilation.)

On the other hand, although the country maintained its oil export during the sanctions, its economy was affected when the oil prices decreased, especially in 2014 and 2015. According to the World Bank data, the fiscal balance of Iran deteriorated from a deficit of 1.2 percent of GDP in 2014 to 2.7 percent of GDP in 2015 because of low oil prices.²¹³ As the oil revenues are significant elements of Iranian economy, the oil prices became crucial for Iran. During the period of sanctions, the country tried to keep the oil prices high to keep its oil revenues stable. In this period Iran urged other OPEC members like Saudi Arabia and Kuwait to make reduction in oil production in order to keep prices high.²¹⁴ Since 2004, according to the EIA, Iran's primary energy consumption has also increased by almost 50 percent and to use its energy efficiently Iran introduced energy subsidy reform. Under the energy subsidy

²¹³Iran (1 April 2016). The World Bank. Retrieved from <http://www.worldbank.org/en/country/iran/overview>

²¹⁴Crane, K., Lal, R. And Martini, J. (2008). *Iran's Political, Demographic and Economic Vulnerabilities*. USA: The Rand Corporation. p. 76.

reform, consisting of two phase which were enacted in 2010 and 2014, prices of domestic petroleum was increased, along with gas and electricity.²¹⁵ According to Crane, Lal and Martini says “Iran has periodically threatened to use oil as a diplomatic tool. Iran’s top nuclear negotiator, Ali Larijani, recently threatened to divert oil sales from countries that are pressuring Iran to abandon its nuclear program” and for the authors, Iran’s threats were empty threats due to the government was in need of oil revenues.²¹⁶ The reduction in oil export of Iran after the sanctions led to financial difficulties in the country’s economy. Hence, despite its rich oil reserves, Iran could not benefit the advantage of these resources because of nuclear related sanctions and its uncompromised energy diplomacy of that time.

3.2.2. Natural gas

In addition to oil, the sanctions also included Iran’s gas sector which hold the second largest gas resources in the world, especially the EU prohibited the import of Iranian natural gas and financing of such activities in 2012. However, it did not have real impact as much as oil due to the Iran did not have such kind of a trade relation with the EU countries. Patterson identifies the ban on gas import as a symbol because the EU had not imported gas from Iran before and there was no infrastructure in place for a gas transfer.²¹⁷ According to the U.S. Energy Information Administration, Iran is a not a significant natural gas exporter despite it holds world’s second-largest natural gas reserves.²¹⁸ Nevertheless, gas sector was also affected by the nuclear sanctions as they isolated Iran from global markets. Iran’s gas sector has remained small as its reserves were underdeveloped and its exports decreased under the

²¹⁵Iran (19 June 2015). U.S. Energy Information Administration. p. 2. Retrieved from <https://www.eia.gov/beta/international/analysis.cfm?iso=IRN>

²¹⁶Crane, K., Lal, R. And Martini, J. (2008). *Iran’s Political, Demographic and Economic Vulnerabilities*. USA: The Rand Corporation. p. 76.

²¹⁷Patterson, R. (2013). EU Sanctions on Iran: The European Political Context. *Middle East Policy Council*. No. 1. Retrieved from <http://www.mepc.org/journal/middle-east-policy-archives/eu-sanctions-iran-european-political-context?print>

²¹⁸Iran (19 June 2015). U.S. Energy Information Administration. p. 9. Retrieved from <https://www.eia.gov/beta/international/analysis.cfm?iso=IRN>

sanctions as a result of lack of investment and technology.²¹⁹ Perkovich and Silvia Manzanero argue that if Iran could be a significant gas exporter, the sanctions' blocking on gas industry would "more dramatically increased the cost of Iran's noncompliance with the demands of the international community".²²⁰ The most of Iranian gas has been injected into its oil fields to increase production.²²¹ However, production growth of Iran increased in 2014 because new phases at the South Pars natural gas field, which holds almost 40% of the country's proved natural gas, was activated.²²²

Iranian Gas Production, Consumption, Export and Import, 2006-2013

Year	Production (Billion Cubic Feet)	Consumption (Billion Cubic Feet)	Gas Export (Billion Cubic Feet)	Gas Import (Billion Cubic Feet)
2006	5,926	3,839	201	205
2007	6,152	3,992	218	258
2008	6,372	4,213	145	251
2009	7,428	4,993	209	216
2010	7,774	5,106	297	242
2011	7,915	5,415	320	374
2012	8,169	5,554	323	237
2013	8,083	5,556	329	188

Table 12: Iranian gas production, consumption, export and import, 2006-2013

Source: Energy Information Administration. Retrieved from <https://www.eia.gov/beta/international/country.cfm?iso=IRN> (The table is my compilation.)

According to Crane, Lal and Martini, the government considers gas as a significant means for diversify its budget revenues which is heavily depends on oil and for this

²¹⁹*Ibid.*

²²⁰Perkovich, G. and Manzanero, S. (2004). Plan B: Using Sanctions to End Iran's Nuclear Program. *Arms Control Today*, Vol.34, No.4, p. 23.

²²¹Katzman, K. (2016). Iran Sanctions. *Congressional Research Service*.p.9.

²²²Iran (19 June 2015). U.S. Energy Information Administration. p. 2. Retrieved from <https://www.eia.gov/beta/international/analysis.cfm?iso=IRN>

reason it has been investing on developing new gas fields in the Persian Gulf.²²³ During sanctions, Iran maintains gas trade with its neighbors. Under the agreement which was signed by Turkey and Iran in 1996, Iran continued to export natural gas to Turkey and it delivered 8.9 billion cubic meter of natural gas to Turkey by 2014.²²⁴ It also supplied less than 1 billion cubic meter of natural gas to Azerbaijan and provided natural gas to Armenia in exchange for electricity.²²⁵ Despite its resources, Iran also imported natural gas from Turkmenistan and it bought 10.2 billion cubic meter in 2011.²²⁶ The country also signed an agreement in 2013, however the project could not be realized due to political and security issues.²²⁷ to export its gas to Iran For Crane, Lal and Martini, Iran has hope to export its gas to Europe via Turkey but countries did not sign any construction contracts because of Iran's nuclear policy and sanctions.²²⁸ Therefore, Iran went toward its eastern neighbors such as Pakistan and India. Although Iran signed a memorandum of understanding with India for the gas pipeline in 1993, the project has not been effective, only the negotiating intensified on the project.²²⁹ As indicated in Table 12, Iran steadily increased its gas production, however it could not play a major role in countries economy because the share of gas is small in countries export activities, as an illustration the country exported 3.3 billion cubic meter gas in 2003.²³⁰ Thus, the country could use its gas reserves for domestic consumption rather than export to market.

²²³Crane, K., Lal, R. And Martini, J. (2008). *Iran's Political, Demographic and Economic Vulnerabilities*. USA: The Rand Corporation. p. 71.

²²⁴Vakhshouri, S. (2015). Iran's Energy Policy After the Nuclear Deal. *Atlantic Council Global Energy Center*. p. 10.

²²⁵Vakhshouri, S. (2015). Iran's Energy Policy After the Nuclear Deal. *Atlantic Council Global Energy Center*. p. 10.

²²⁶*Ibid*, p. 11.

²²⁷Vakhshouri, S. (2015). Iran's Energy Policy After the Nuclear Deal. *Atlantic Council Global Energy Center*. p. 12.

²²⁸Crane, K., Lal, R. And Martini, J. (2008). *Iran's Political, Demographic and Economic Vulnerabilities*. USA: The Rand Corporation. p. 72.

²²⁹*Ibid*.

²³⁰*Ibid*, p. 78.

3.2.3. Electricity and nuclear

Iran's primary fuel source to generate electricity is natural gas with 70 percent of total generation in 2013 and the country generated 224 billion kilowatt hours of electricity at the same year, according to EIA.²³¹ The remaining resources used in the electricity generation are hydropower, nuclear and renewables. In 2014, the government announced a price increase by 25 percent for electricity prices to prevent the growth of demand, however country's electricity consumption continued to grow.²³² Despite its high level electricity consumption, the country also exported its electricity to its neighbors such as Pakistan, Turkey, Iraq and Afghanistan. The country exported 11 billion kilowatt hours of electricity in 2012.²³³ On the other hand, it also imported 3.9 billion kilowatt hours of electricity in 2012 from Azerbaijan and Armenia under swap agreement; it is more than previous year by 7 percent, according to EIA.²³⁴

²³¹Iran (19 June 2015). U.S. Energy Information Administration. p.1. Retrieved from <https://www.eia.gov/beta/international/analysis.cfm?iso=IRN>

²³²*Ibid.*

²³³Iran (19 June 2015). U.S. Energy Information Administration. p.1. Retrieved from <https://www.eia.gov/beta/international/analysis.cfm?iso=IRN>

²³⁴*Ibid.*

Iran's electricity generation capacity, by fuel , 2013

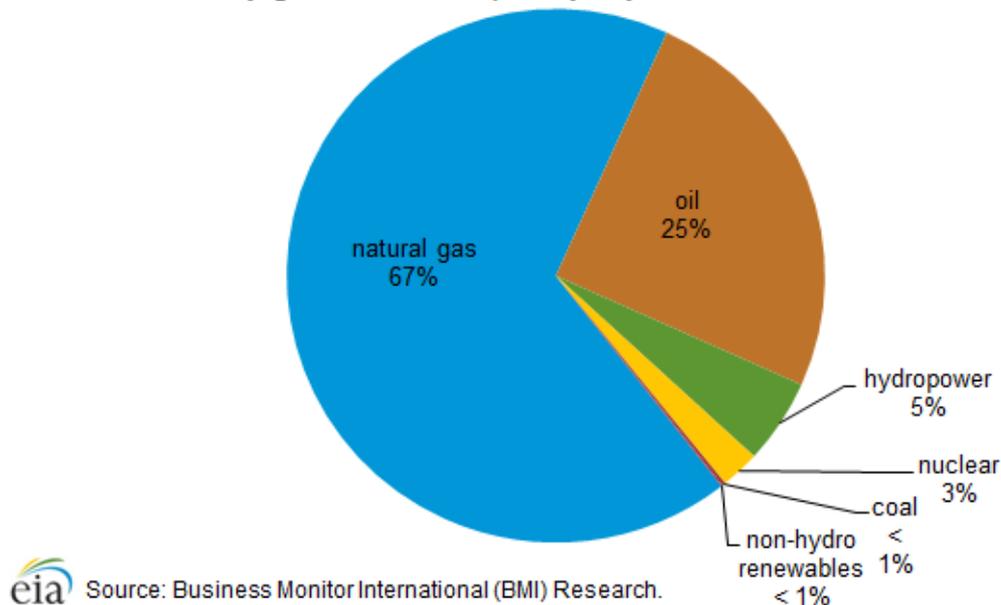


Figure 5: Iran's electricity generation capacity by fuel, 2013
Source: Energy Information Administration. Retrieved from <https://www.eia.gov/beta/international/country.cfm?iso=IRN>

In addition to fossil fuels and renewables, Iran also benefits from nuclear power even if it is small amount. Iran's first nuclear power plant at Bushehr with capacity of 700 megawatts fully operated in 2013, the plant began to produce power at the same year and the government planned to construct additional plant with a capacity of 360 megawatts but nuclear sanctions imposed on Iran blocked Iran's nuclear ambitions.²³⁵ Blocking transfer of technology to Iran prevented development of country's nuclear activities and electricity generation from nuclear. As the country's oil, gas and nuclear sectors were curbed by the sanctions, Iran began to focus on renewables during that period. In 2012, Iran's renewable energy capacity was 9,385 megawatts and Iranian officials showed their willingness to invest and improve renewable energy sector as the government saw it as a tool for reducing fossil fuel dependency.²³⁶ As an illustration, same year, President Ahmadinejad allocated 620

²³⁵*Ibid.*

²³⁶Faucon, B. (17 September 2012). In Iran, the Wind Blows Free. Of Sanctions, That Is. *The Wall Street Journal*. Retrieved from <http://www.wsj.com/articles/SB10000872396390443659204577574972899961532>

million dollars to support renewable projects.²³⁷ Hence, renewable energy sources were considered as a means for diversifying the country's energy mix, therefore it could reduce the impact of the sanctions that target Iran's revenue source fossil fuel industry.

3.3. Conclusion

Iran suffered from the international sanctions since the beginning of the new regime. The major sanctions were enforced by the US, EU and UN over the years against the country. Although the sanctions became an ongoing curse of the new regime, the objectives of sanctions differed from each other. The first sanctions imposed by the US aimed at preventing Iran's support of terrorism. On the other hand, the sanctions of 2000s targeted Iran's nuclear activities ensuring that its nuclear program is for civilian use. While the EU sanctions blocked economic activities between Iran and European countries, the UN sanctions had larger impact on Iranian economy as it is binding on all UN member states. As the sanctions mainly targeted Iran's fossil fuel industry, which is the major source of country's revenues, and the transfer of goods along with technology, it had heavy impact on Iranian energy sector. Thus, the sanctions prevented Iran to export its energy resources to the market, along with its block on development of Iran's energy industry. While the energy sector, mainly fossil fuel revenues, constituted approximately 20 percent of Iran's GDP prior to 2005, the figures declined over the past decades due to the sanctions.²³⁸ Farzanegan also asserts that the sanctions targeted the country's oil revenues which affect whole economy.²³⁹ Although the country holds rich energy resources, it could not achieve its potential and benefit from them because of the nuclear restrictions. During the sanction period, Iran mainly exported oil and gas to Asian countries as it is hindered to sell these goods to the West and this economic interaction based on energy led to convergence of the country with Asian countries. As the global oil prices were high until mid-2014, the country's economy was not hurt severely but after oil prices

²³⁷*Ibid.*

²³⁸Katzman, K. (2016). Iran Sanctions. *Congressional Research Service*.p.9.

²³⁹Farzanegan, M.R. (2013). Effects of International Financial and Energy Sanctions on Iran's Informal Economy. *SAIS Review*, Vol. 33, No. 1, p. 15.

started to decrease the country urged other OPEC member countries to keep the oil prices high by limiting their production, in the same period Iran took steps in nuclear talks for lifting sanctions. Also, during the sanctions, Iran tried to diversify its energy mix by focusing and developing renewable energy. On the other hand, country's nuclear activities limited because of the sanctions but it maintained to generate electricity even if it had a small share in the country's electricity generation. Despite Iran continued its export activities mainly with Asian countries even in limited scale, the country was isolated from the global markets and its economy, particularly energy sector, got hurt due the pressure of nuclear related sanctions imposed by the West. The nuclear negotiations between Iran and P5+1 and the JPOA are examined in the next chapter.

CHAPTER 4

NUCLEAR NEGOTIATIONS AND LIFTING OF SANCTIONS, 2015

This chapter examines the nuclear negotiations between P5+1 and it analyzes the Joint Comprehensive Plan of Action signed on 14 July 2015, to be able to identify the effect of easing of sanctions on Iranian energy sectors. The nuclear negotiations between Iran and the West actually dated back to 2003 after the documents regarding its nuclear activities revealed in 2002 but their talks to reach a deal on the issue dated back to 2011, from that date two sides met several times in Istanbul, Baghdad and Moscow to reach an agreement on Iran's nuclear activities.²⁴⁰ However, the nuclear talks were going slow due to the skepticism and prudent attitude of the two sides. Iran's current moderate president Hassan Rouhani was elected in 2013 and from that date the talks accelerated. As a result of the efforts of the new government, the JPOA was established between Iran and P5+1 in 2013 and its implementation started in 2014. Iran and P5+1 reached a framework agreement in April 2, 2015 to guide the negotiations and the comprehensive agreement signed in 14 July, 2015.²⁴¹ The Agreement asserted that Iran will ever develop or acquire nuclear weapon. As a result of the comprehensive agreement, the International Atomic Energy Agency verified that Iran complied with the nuclear related steps and it was agreed that the nuclear related sanctions, including energy related sanctions, would be gradually lifted at the beginning of 2016.²⁴² There are both supporters and opponents of the JCPOA in international and national context. International proponents of the JCPOA believe that the Plan will contribute to the international peace by limiting Iran's

²⁴⁰Timeline of Nuclear Diplomacy with Iran. (18 September 2015). *Arms Control Association*. Retrieved from <https://www.armscontrol.org/factsheet/Timeline-of-Nuclear-Diplomacy-With-Iran>

²⁴¹Iran (19 June 2015). U.S. Energy Information Administration. p. 2. Retrieved from <https://www.eia.gov/beta/international/analysis.cfm?iso=IRN>

²⁴²Nichols, M. (16 January 2016). U.N. lifts most Iran sanctions on receipt of IAEA nuclear report. Reuters. Retrieved from <http://www.reuters.com/article/us-iran-nuclear-un-idUSKCN0UU15V>

nuclear program while opponents claim that it will increase the risk of conflict in the region as it allows Iran to have nuclear power. In Iran, some believe that the JCPOA will help the country to integrate the global economic system and reach prosperity, while others concern that it undermines the regime's basis as it is considered as the agreement between Iran and the West that has been identified as the evil by the regime. Despite the discussions, it is clear that the JCPOA triggered the beginning of a new period in relations of Iran and the West and it enabled Iran to reintegrate to the global system, especially in economic context.

4.1. Negotiations between the West and Iran

The negotiations between Iran and P5+1 to reach an agreement and lifting of sanctions began in 2011 after the adoption of Resolution 1929 in 2010. According to Kimball, the goals of P5+1 were to establish limits on Iran's uranium enrichment, increase the role of international community to detect and disrupt the country's any possible efforts to develop nuclear weapons and decrease the country's incentives to develop nuclear capacity through sanctions relief.²⁴³ In 2011, Iran and P5+1 met in Istanbul to negotiate on Iran's preconditions regarding transparency measures, recognition of a right to enrichment and the lifting of sanctions, but they were rejected by the P5+1.²⁴⁴ A year later, Iran and the west met once again in Istanbul and they agreed on a framework of continuing negotiations and then they came together in Baghdad for a second set of talks, later on in Moscow for a third set of talks.²⁴⁵ The final meeting before Rouhani government's election made in Almaty, Kazakhstan but sides did not make any progress at the end of the meetings.²⁴⁶ In June 2013, Hassan Rouhani was elected as a new president of Iran and a new period in nuclear talks started as Rouhani decided on continuing negotiations with P5+1 countries on Iran's nuclear program, he called for resumption of talks and the P5+1

²⁴³Kimball, D.G. (2014). Focus: Assessing a Nuclear Deal with Iran. *Arms Control Association*, Vol.44, No. 6.

²⁴⁴Timeline of Nuclear Diplomacy with Iran. (18 September 2015). *Arms Control Association*. Retrieved from <https://www.armscontrol.org/factsheet/Timeline-of-Nuclear-Diplomacy-With-Iran>

²⁴⁵*Ibid.*

²⁴⁶*Ibid.*

foreign ministers met with Iranian Foreign minister Javad Zarif in New York.²⁴⁷ In September 2013 the U.S. President Barack Obama called Iranian President Rouhani and this phone call marked as the highest level contact between Iran and the U.S since 1979.²⁴⁸ In October 2013, Iran and P5+1 met in Geneva to resume nuclear talks and this meeting was followed by others to reach an agreement on a first phase deal. In November 2013, IAEA Director General Yukiya Amano and the head of Atomic Energy Organization of Iran Ali Akbar Salehi met in Tehran and they signed a Framework for Cooperation Agreement to ensure the peaceful nature of Iran's nuclear program by allowing IAEA access to the Heavy Water Production Plant at Arak and the Gchine uranium mine and providing information on Iran's new nuclear activities.²⁴⁹ Iran and P5+1 countries came together in Geneva once again in 2013 and they signed the Joint Plan of Action which guides negotiations for a comprehensive solution and its implementation began in January 2014.²⁵⁰ Meantime, the IAEA issued a report on Iran's compliance with the deal and it stated that Iran abided by to the terms of agreement which halts enrichment of uranium by 20 percent and stop work on the Arak Heavy Water Reactor. The negotiations between Iran and P5+1 on comprehensive agreement started in Vienna and they decided on an agenda and framework to guide the nuclear talks.²⁵¹ After several meetings, parties began drafting the comprehensive agreement in May 2014.²⁵² For the interim agreement, P5+1 countries announced additional actions for Iran which include converting 25 kilogram of uranium powder enriched to 20 percent into fuel plates and blending down roughly 3 tons of uranium enriched to less than 2 percent and in return P5+1 will repay \$2.8 billion in funds.²⁵³ However Iran missed the deadline to complete actions in August 2014 and talks were prolonged, on the other hand the

²⁴⁷*Ibid.*

²⁴⁸*Ibid.*

²⁴⁹*Ibid.*

²⁵⁰*Ibid.*

²⁵¹*Ibid.*

²⁵²*Ibid.*

²⁵³*Ibid.*

IAEA confirmed Iran's commitment to interim deal in its quarterly report on Iran's nuclear program but it stated Agency's concern on lack of information about the countries past activities.²⁵⁴ Despite opposition of Israel and objections in the U.S. Congress in March 2015 in Lausanne and the head of Iran's Atomic Energy Organization Salehi stated they made progress on technical issues and some issues remain and need to be discussed.²⁵⁵ The P5+1 countries and Iran agreed on the Joint Comprehensive Plan of Action after the long standing negotiations and the accord envisaged gradually relief of sanctions on Iran's energy, financial, automotive and other sectors.²⁵⁶ After announcement of the comprehensive deal, the UN Security Council passed a resolution which endorsed the nuclear deal and lifting UN sanctions.²⁵⁷ The US, also, in accordance with the JCPOA, relaxed the import ban on Iran but it has not permitted general trade.²⁵⁸

According to Kissenger, although the negotiations are seen as talks on technical, the issue is about the "international order".²⁵⁹ Kissenger thinks that the negotiations between Iran and P5+1 are "about the ability of the international community to enforce its demands against sophisticated forms of rejection, the permeability of the global nonproliferation regime, and the prospects for a nuclear arms race in the world's most volatile region".²⁶⁰ In other words, these talks might be considered as efforts to survive of proliferating nuclear countries in international order and it aims at deterring nuclear war. Kissenger says:

Three hurdles have to be overcome in acquiring a deployable nuclear weapons capability: the acquisition of delivery systems, the production of fissile material, and the building of warheads. For

²⁵⁴*Ibid.*

²⁵⁵*Ibid.*

²⁵⁶Katzman, K. (2016). Iran Sanctions. *Congressional Research Service*.

²⁵⁷Timeline of Nuclear Diplomacy with Iran. (18 September 2015). *Arms Control Association*. Retrieved from <https://www.armscontrol.org/factsheet/Timeline-of-Nuclear-Diplomacy-With-Iran>

²⁵⁸Katzman, K. (2016). Iran Sanctions. *Congressional Research Service*.p.6.

²⁵⁹Kissinger, H. (2014). *World Order*. USA: Penguin Press. p. 96.

²⁶⁰*Ibid.*

delivery systems, there exists a substantially open market in France, Russia, and to some extent China; it requires primarily financial resources. Iran has already acquired the nucleus of a delivery system and can add to it at its discretion. The knowledge of how to build warheads is not esoteric or difficult to discover, and their construction is relatively easy to hide. The best—perhaps the only—way to prevent the emergence of a nuclear weapons capability is to inhibit the development of a uranium enrichment process. The indispensable component for this process is the device of centrifuges—the machines that produce enriched uranium. (Plutonium enrichment must also be prevented and is part of the same negotiation.) The United States and the other permanent members of the UN Security Council have been negotiating for over ten years through two administrations of both parties to prevent the emergence of such a capability in Iran.²⁶¹

On the other hand, Iran’s religious leader Ayatollah Khamenei kept its prudent position against the West and he made statements that legitimized the talks between the West and Iran. Khamenei described the talks as a part of a religious struggle in which negotiation was a form of combat.²⁶² On the other hand, there was also an economic aspect of the nuclear talks. Molavi, in 2009, said “Iran’s nuclear ambitions may have a considerable effect on the future economic situation. In particular, the negotiation process may lead to benefits for Iran if it plays its card right” and he adds that otherwise, increase economic sanctions and embargo could be “disastrous” for Iranian economy.²⁶³ Hence, another reason behind the talks was economic and Rouhani government maintained negotiations prudently in order to prevent any economic disastrous for the country.

4.2. Joint Comprehensive Plan of Action

Joint Comprehensive Plan of Action is a road map which ensured that Iran’s nuclear program would be peaceful. In the preface of JCPOA, it is said “full implementation of this JCPOA will positively contribute to regional and international peace and

²⁶¹*Ibid*, p. 97.

²⁶²*Ibid*, p. 100.

²⁶³Molavi, R. (2009). *Oil and Gas Privatisation in Iran*. UK: Ithaca Press. p. 112.

security”.²⁶⁴ Also, the article ii of the JCPOA said “the full implementation of this JCPOA will ensure the exclusively peaceful nature of Iran’s nuclear programme”.²⁶⁵ The Plan signed by P5+1 countries and Iran asserted that the country will not develop and acquire any nuclear weapon. According to JCPOA, “Successful implementation of this JCPOA will enable Iran to fully enjoy its right to nuclear energy for peaceful purposes under the relevant articles of the nuclear Non-Proliferation Treaty in line with its obligations therein and the Iranian nuclear program will be treated in the same manner as that of any other non-nuclear weapon state party to the NPT”.²⁶⁶ Hence, JCPOA can be considered as a landmark of confidence building process between Iran and P5+1 countries in terms of the country’s nuclear activities because it both ensures peaceful nature of Iran’s nuclear activities and it also protects Iran’s right to have nuclear energy in line with the NPT. Besides, while the JCPOA guaranteed that Iran will continue its nuclear activities within peaceful framework, it also proclaimed the emancipation of Iran from the sanctions. In the article v of JCPOA, it stated that “The JCPOA will produce the comprehensive lifting of all UN Security Council sanctions as well as multilateral and national sanctions related to Iran’s nuclear program, including steps on access in areas of trade, technology, finance and energy.”²⁶⁷ The parties observe and revive the implementation of JCPOA by meeting at ministerial level every 2 years under the plan.

The measures, which are taken regarding Iran’s nuclear activities, are listed under three headings—first is enrichment, enrichment research and development, stockpiles, second is Arak, heavy water, reprocessing, and third is ‘transparency and confidence building measures. Under the title of enrichment, enrichment R&D, stockpiles, the measures on Iran’s uranium enrichment and R&D are detailed in JCPOA. In this context, Iran agreed limitations on all uranium enrichment and

²⁶⁴Joint Comprehensive Plan of Action. (14 July 2015). p.2.

²⁶⁵*Ibid.*

²⁶⁶*Ibid*, p.3.

²⁶⁷*Ibid*, p.3.

specific research and development activities for the first 8 years.²⁶⁸ According to JCPOA, the country will phase out its IR-1 centrifuges in 10 years and excess centrifuges and enrichment will be stored under IAEA monitoring.²⁶⁹ Although JCPOA puts restrictions on Iran's nuclear enrichment and R&D activities, it allows Iran to conduct these kinds of activities and testing in its centrifuges in limited way. Iran is not allowed to manufacture centrifuges and advanced centrifuge machines with JCPOA; it can only manufacture advance centrifuge machines specified in JCPOA. However, after 8 years the country will be able to manufacture agreed numbers of centrifuges machines without rotors and all machines will be stored at its Natanz under the control of IAEA. The Plan also determined a level for the uranium enrichment and it states "Based on its own long-term plan, for 15 years, Iran will carry out its uranium enrichment-related activities, including safeguarded R&D exclusively in the Natanz Enrichment facility, keep its level of uranium enrichment at up to 3.67 percent and at Fordow, refrain from any uranium enrichment and uranium enrichment R&D and from keeping any nuclear material".²⁷⁰ Hence, with the JCPOA, Iran can maintain its uranium enrichment activities only its Natanz facility and it should keep its uranium enrichment level at 3.67 percent. On the other hand, the JCPOA does not allow Iran to use its second nuclear facility Fordow for nuclear enrichment for 15 years and it cannot convert Fordow to a nuclear, physic and technology center. In addition to the measures regarding uranium enrichment and R&D activities, JCPOA also regulates heavy water research reactor in Arak under the title of Arak, heavy water and reprocessing. According the JCPOA, Iran will rebuild heavy water research reactor in Arak considering agreed conceptual design which uses fuel unreached up to 3.67 percent and the reactor will not produce weapons grade plutonium.²⁷¹ Also, the JCPOA restrains Iran from building an additional heavy water reactors or accumulation of heavy water for 15 years. Iran,

²⁶⁸*Ibid*, p. 6.

²⁶⁹*Ibid*, p. 6.

²⁷⁰*Ibid*, p. 7.

²⁷¹*Ibid*, p. 7.

with the JCPOA, can export excess heavy water to the international market.²⁷² Besides, transparency and confidence_building measures are another heading of the JCPOA and Iran will allow the presence and monitoring of IAEA to observe the implementation of the measures. The country assured that it will not engage in any activities that can contribute to the development of nuclear weapon under the JCPOA.

The articles regarding lifting of the UN's sanctions on Iran are also listed and detailed under the JCPOA which terminates all provisions of previous UN Security Council resolutions on Iran's nuclear activities, along with EU's nuclear related economic and financial sanctions.²⁷³ The sanctions eased under the JCPOA might be examined under five headings which are energy sanctions, banking sanctions, sanctions on automotive sector and trade in Iranian Rial, the EU ban on oil and gas trade and the ban on Iran's use of the Society for Worldwide Interbank Financial Telecommunication system.²⁷⁴ The banking sanctions covered the limitation transaction with Iranian banks. The sanctions on Iranian automotive sector banned trade in automotive sector with Iran and the sanctions also prevented trade in Iranian Rial. The EU ban on oil trade prevented purchase of Iranian oil and gas. The ban on SWIFT system restrained Iran from being a part of SWIFT electronic payment system. The energy sanctions included the limit put on Iran's exportation of oil and the sanctions on foreign sale to Iran gasoline, equipment used in energy industry and investment in energy sector. Hence, JCPOA abolished UN, EU and US restrictions on import and transport of Iranian oil, petroleum products, gas and petrochemical products. Besides, it allowed export of key equipment or technology for the oil, gas and petrochemical sectors, along with investment in these sectors.²⁷⁵ The last part of JCPOA is constituted by implementation plan and dispute resolution mechanism. Under JCPOA, if the sides will not meet their commitments, they could refer to the

²⁷²*Ibid*, p. 8.

²⁷³*Ibid*, p. 10.

²⁷⁴Katzman, K. (2016). Iran Sanctions. *Congressional Research Service*.p.37.

²⁷⁵Joint Comprehensive Plan of Action. (14 July 2015). p. 10.

Joint Commission which would have 15 days to resolve the problems.²⁷⁶ If the sanctions are reinstated, Iran will have a right to cease performing its commitments under the JCPOA. Hence, all conditions to ensure peaceful implementation of Iranian nuclear program and lifting of sanctions were identified with the JCPOA.

4.3. Proponent and opponent of JCPOA

There are both supporters and opponents of JCPOA in international arena and in Iran's domestic politics. In international context, supporters of the JCPOA think that if the sides would not reach to an agreement, Iran would maintain its nuclear activities, so the JCPOA limited the country's activities and had the opportunity to keep it under international control.²⁷⁷ For this reason, Nephew describes the deal "an improvement over the status quo" as it provided confidence that Iran cannot get a nuclear weapon although it is not an ideal agreement.²⁷⁸ Otherwise, Iran could establish more centrifuges, accelerate its research and development, and continue to construction of Arak heavy water research reactor. Also, Iran could have an opportunity to continue to produce nuclear energy. According to Samore, opponents of the JCPOA claim that stricter restrictions should have been enforced on Iran and they advocate longer duration for the limitations and tighter inspection on Iran's nuclear program.²⁷⁹ Besides, opponents argue that the intense economic sanctions against the country would be sufficient to make Iran nuclear concessions.²⁸⁰ On the other side, Samore notes that supporters assert that if the JCPOA would not have been signed and the sides could not reach an agreement, it would discredit the Iranian leaders who have stand for compromise and it would enable Iran to blame the

²⁷⁶*Ibid.*

²⁷⁷Samore, G. (2015). *The Iran Nuclear Deal: A Definitive Guide*. USA: Belfer Center for Science and International Affairs. p.9.

²⁷⁸Nephew, R. (2015). Commentary on the Nuclear Deal between Iran and the P5+1. *The Center on Global Energy Policy at Columbia University's School of International and Public Affairs*. p. 1.

²⁷⁹Samore, G. (2015). *The Iran Nuclear Deal: A Definitive Guide*. USA: Belfer Center for Science and International Affairs. p.10.

²⁸⁰*Ibid.*

US and the West for ignoring a diplomatic settlement of the disputes.²⁸¹ In addition, proponents and opponents of the JCPOA also differ on its impact on regional security and politics. In this context, supporters argue that it will positively contribute to the Middle Eastern security, especially security of Israel and the Gulf States as it limits the country's nuclear activities and remove its threats while opponents claim that it will increase provocations in the region.²⁸² As an illustration, Kimball considers the deal between Iran and P5+1 as a tool which would improve the US and international security and he said "a good deal is better than no deal".²⁸³ However, the opponents, which were mainly Israel, the Gulf States led by Saudi Arabia and the Skeptics in the US Congress, believed that the JCPOA allows Iran to become a nuclear power and it will increase its threat pose on regional security. Any of these actors did not trust Iran on its nuclear program. Skeptics in the US Congress, mainly Republicans, did not trust the country and they concerned that the verification measures are not adequate.²⁸⁴ After the talks in Lausanne, in March 2015, they brought the issue into question in the US Congress and the nuclear bill was discussed by the US senate.²⁸⁵ They made several amendments on the nuclear bill; while Democrats mostly tried to give negotiators more room for maneuver, Republicans tried to make it restrictive. Ultimately, the US Congress and Obama government reached an agreement on the nuclear bill. Accordingly, the Congress achieved the power of review and it had a right to vote on nuclear accord, on the other hand Obama preserve his right to veto the decision of the Congress.²⁸⁶ Despite all opposition, during the negotiations, the US government showed that they were eager

²⁸¹*Ibid*, p.11.

²⁸²*Ibid*.

²⁸³Kimball, D.G. (2014). Focus: Assessing a Nuclear Deal with Iran. *Arms Control Association*, Vol.44, No. 6.

²⁸⁴Strobel, W. (5 April 2015). Republicans push demand for a vote on Iran nuclear deal. *Reuters*. Retrieved from <http://www.reuters.com/article/us-iran-nuclear-congress-idUSKBN0MW0QF20150406>

²⁸⁵Torbati, Y. (13 April 2015). Deal or not, many U.S. states will keep sanctions grip on Iran. *Reuters*. Retrieved from <http://www.reuters.com/article/us-iran-nuclear-states-idUSKBN0N40CX20150413>

²⁸⁶Zengerle, P. (14 April 2015). In setback, Obama concedes Congress role on Iran deal. *Reuters*. Retrieved from <http://www.reuters.com/article/us-iran-nuclear-congress-idUSKBN0N50AJ20150414>

to reach an agreement with Iran. However, after Donald Trump took over the presidency, opposition against the nuclear deal regained strength because of new discourses and attitude of new US president. The US president elect Trump described the nuclear deal as a “disaster”, he pledged to “dismantle” it and he identified it as “the worst deal ever negotiated”.²⁸⁷ Meanwhile, Trump administration imposed new sanctions following Iran’s ballistic missile test.²⁸⁸ Hence, while the democrats support the deal, the republicans of the US and new president elect Trump are strongly opposed to the deal and in a way this opposition poses a threat for future of the deal. In addition to the opposition in the US Congress, in the region, Israel set its face against any agreement with Iran. Israel’s Prime Minister Benjamin Netanyahu said that any deal with Iran would threaten the survival of Israel and he considered even the framework agreement as a reward for Iran.²⁸⁹ Tarnopolsky claims that Netanyahu repeat the same argument for years but he does not offer an alternative on the issue.²⁹⁰ Besides, another skeptic on the Iran-P5+1 deal were Saudi Arabia and the Gulf states. Although Saudi King Salman stated his good wishes about the deal, he and the leaders of the other Gulf States were cautious on the issue.²⁹¹ They concerned that deal would be benefit of Iran, which is the leading Chia power in the region and it is regarded as a threat expanding its influence mainly in Iraq, Syria and Yemen. So they thought that Iran would consolidate its power in the region by loosening the sanctions and intensify its expansionist policies.

In domestic politics, Iranians also differed on Iran’s nuclear program and the JCPOA. In terms of the country’s nuclear program, there were four groups of view in

²⁸⁷Torbati, Y. (9 November 2016). Trump election puts Iran nuclear deal on shaky ground. *Reuters*. Retrieved from <http://www.reuters.com/article/us-usa-election-trump-iran-idUSKBN13427E>

²⁸⁸Torbati, Y. (3 February 2017). Trump administration tightens Iran sanctions, Tehran hits back. *Reuters*. Retrieved from <http://www.reuters.com/article/us-iran-usa-idUSKBN15H253>

²⁸⁹Lewis, O. (3 April 2015). Netanyahu tells Obama Iran deal threatens Israel; to convene top ministers. *Reuters*. Retrieved from <http://www.reuters.com/article/us-israel-iran-framework-idUSKBN0MU0BR20150403>

²⁹⁰Tarnopolsky, N. (9 April 2015). By condemning nuclear deal, Netanyahu prioritizes his own personal fortune. *Reuters*. Retrieved from <http://blogs.reuters.com/great-debate/2015/04/09/by-condemning-nuclear-deal-netanyahu-prioritizes-his-own-personal-fortune/>

²⁹¹Dehghanpisheh, B. And Lewis, O. (3 April 2015). Iran president views nuclear deal as start of new relationship with world. *Reuters*. Retrieved from <http://www.reuters.com/article/us-iran-nuclear-idUSKBN0MQ0HH20150403>

Iran according to Afrasiabi and Kibaroglu.²⁹² The first and small group of people believed that Iran does not need any nuclear program. The second group argued that Iran had right to acquire peaceful nuclear capability. The third group claimed that Iran needed to develop nuclear weapon as they did not trust to the international community and they showed Iran-Iraq war as another reason behind their argument. The fourth group strongly supported the withdrawal from the Non-Proliferation Treaty and acquired nuclear weapon. Therefore, the majority of the Iranians are in favor of having nuclear capability. Afrasiabi and Kibaroglu explain the reason of the support for nuclear program with Iranian national pride and they argue that Iranians see nuclear technology as a most advance technology and they believe that having nuclear technology would make Iran one of the most powerful country in the international arena.²⁹³ Iranians had also distinct opinions on the nuclear deal as well as the country's nuclear program. Supporters believed that the JCPOA might strengthen moderate politician because it would lead to global economic integration of Iran and help economic development of the country.²⁹⁴ On the other hand, there is a group, mainly clerics and conservatives, which was prudent on the nuclear deal with the West. As an illustration, the country's religious leader Ayatollah Ali Khamenei said that he neither backed nor rejected the deal and he concerned that it could be deceptive, so he was not optimistic about the deal.²⁹⁵ Hence, the JCPOA led discussions both in international politics and domestic politics. While its supporters consider it as an opportunity for compromise and international security, others see it as a wrong step taken against Iran's nuclear activities.

²⁹²Afrasiabi, K. And Kibaroglu, M. (2005). Negotiating Iran's Nuclear Populism. *The Brown Journal of World Affairs*, Vol. 12, No. 1, p. 257.

²⁹³*Ibid.*

²⁹⁴Samore, G. (2015). *The Iran Nuclear Deal: A Definitive Guide*. USA: Belfer Center for Science and International Affairs. p.11.

²⁹⁵Maclean, W. (9 April 2015). Iran's Khamenei says neither rejects, accepts nuclear deal, details key. Reuters. Retrieved from <http://in.reuters.com/article/iran-nuclear-khamenei-idINKBN0N010220150409>

4.4. Conclusion

Iran and P5+1 countries took the opportunity to compromise after the long lasting complex talks that dated back to 2003 and they reached an agreement by introducing the JCPOA. The plan, which offers a roadmap on Iran's nuclear program, helps both to avoid any military confrontation and terminate Iran's economic isolation. The JCPOA allows Iran to continue nuclear research and development activities along with its uranium enrichment activities while it also assures the West that the country would not develop nuclear weapons and keep Iran's nuclear program under control. As a result of the comprehensive agreement, the International Atomic Energy Agency verified that Iran complied with the nuclear related steps and it was agreed that the nuclear related sanctions, including energy related sanctions, would be gradually lifted. The JCPOA has been both criticized and supported not only in Iran also in international arena. International proponents of the JCPOA believe that the Plan will contribute to the international peace by limiting Iran's nuclear program while opponents claim that it will increase the risk of conflict in the region as it allows Iran to have nuclear power. On the other hand, in Iran, supporters believe that the JCPOA will help the country to integrate into the global economic system and reach prosperity, while opponents concern that it undermines the regime's basis as it is considered as the agreement between Iran and the West that has been identified as the evil by the regime. Regardless all discussions, it is obvious that the JCPOA marked a turning point for Iran as it enabled the country to reintegrate to the global system and sanction relief will open new chapters in energy cooperation between the country and the West. The deal has raised expectations that Iranian oil would be available immediately and foreign investment would start right after it. As Nephew said this was not the case as the agreement and its implementation involve a long procedure to adapt legislative and other legal bodies.²⁹⁶ Even if the process would take long time and the sides embrace cautious approach, the deal led to optimistic estimates regarding Iran's energy resources and reserves. The effect of the nuclear deal and the impact sanction relief over Iranian energy sectors are reviewed in the following chapter.

²⁹⁶Nephew, R. (2015). Commentary on the Nuclear Deal between Iran and the P5+1. *The Center on Global Energy Policy at Columbia University's School of International and Public Affairs*. p. 2.

CHAPTER 5

IMPACT OF SANCTION RELIEF ON IRANIAN ENERGY SECTOR

The chapter analyzes effects of the nuclear deal and sanction relief on Iranian energy sectors. The new policies, cooperation and investments on Iranian oil, gas and electricity sectors, after the deal reached on July 14, 2015, are examined under the chapter. The deal did not only have significance for international politics, also it was essential for the Iranian energy policy, along with the global energy markets. Even the nuclear negotiation process got foreign investors excited as they consider the country as a big opportunity and market to make investments. Especially, Iran's energy sector is an attractive field to work for foreign investors as it possesses the world's fourth largest proved crude oil reserves and the world's second largest natural gas reserves.²⁹⁷ According to the latest data of the US Energy Information Administration, Iran is one of world's top 10 oil producers with 3.4 million barrels per day of petroleum and top 5 natural gas producers with estimated 5.7 trillion cubic feet of dry natural gas.²⁹⁸ After the nuclear deal, several delegations including Britain, France, Germany, Italy, Japan and South Korea have visited Iran to talk on possible future cooperation in energy field, particularly to invest on Iran's hydrocarbons.²⁹⁹ The deal and sanction relief allowed the country to regain its power in energy field. Although the country holds vast oil and gas resources, it needs foreign investments and transfer of technology to develop its industries, so the lifting of sanctions provided an opportunity for the country to promote its energy sectors. In oil industry, Iranian official aimed an increase both in production amount and in trading volume. In this context, Iranian government introduced new Petroleum Contract in oil field, which replace the country's old buy back model with new

²⁹⁷Iran (2015). U.S. Energy Information Administration.

²⁹⁸*Ibid.*

²⁹⁹McQuaile, M. (28 August 2015). How will Iran's nuclear deal affect oil markets? *Platts*. <http://www.platts.com/news-feature/2015/oil/middle-east-energy-focus/index>

contracting model, to attract foreign investors and Iranian officials started to talk to make cooperation in petroleum industry. In gas sector, the country attached utmost importance on gas industry as many energy experts underline the significance of it in 21st century.³⁰⁰ The country began to cooperate with international energy giants to develop projects in Iranian gas fields after the sanction relief. For Mohamedi, in light of recent agreement and developments between Iran and the West, believes that lifting sanctions could revive Iranian oil and gas sector as foreign private and national oil companies are seeking to invest in the country.³⁰¹ Vakhshouri also noted that Iran prioritized increasing its oil, natural gas and electricity export to Turkey, Iraq and other Gulf countries such as Oman to reach international market, particularly EU, via these transit points.³⁰² In addition to oil and gas, in electricity sector, Iran also started to focus on development of renewable energy sources like solar and wind, which are one of the main component of energy transition from fossil fuels and they also engaged in seeking cooperation with foreign investors in this field. Overall, Iran started to work to revive its energy sectors. Although the country made efforts to regain its power in energy sectors, some factors such as Iranian legislative system and lack of infrastructure pose obstacles for Iranian ambitions in energy policy. Mahmood Khaghani, former Head of the Iran's Oil Ministry's Caspian Sea and Central Asia Department, said that "Iran does not have a defined and transparent energy policy. Yet we do not know to what extent oil, gas, renewables, nuclear or coal is going to play their roles and what percentage in the basket in Iran domestic energy needs."³⁰³ He added that in post sanction era, the Iranian government should develop a transparent energy policy in short term. While Khaghani mentions a lack of transparent energy policy in Iran, the country prioritized reintegration to global energy market and attracting international investors

³⁰⁰Fanchi, J.R. (2005). *Energy in the 21st Century*. USA: World Scientific. p.214

³⁰¹Mohamedi, F. (2015). The Oil and Gas Industry. In R. Wright (Ed.), *The Iran Primer: Power, Politics, and US Policy* (Chapter 4, Economy) Retrieved from <http://iranprimer.usip.org/>

³⁰²Vakhshouri, S. (2015). Iran's Energy Policy After the Nuclear Deal. *Atlantic Council Global Energy Center*. p.2.

³⁰³FEEM channel. (12 February 2016). Mahmood Khaghani, Former Director General, National Iranian oil Company (NIOC). [Video File] Retrieved from <https://www.youtube.com/watch?v=qDEzfOxkE7w>

to regain energy revenues after the lifting of sanctions. Despite the efforts to improve Iranian energy sectors, the concrete outcomes and sustainability of the nuclear deal remained limited.

5.1. Oil industry

Oil industry is the main sources which feeds Iran's revenues for years as the country's economy is characterized by the hydrocarbon sector. The National Iranian Oil Company prioritized increasing oil production, regaining its market share along with its position in OPEC and boosting its export in the market.³⁰⁴ The latest data of OPEC shows that Iran holds 13.1 percent of proven oil reserves and despite all sanctions, it is the second largest oil producer in OPEC.³⁰⁵ Also, as World Bank data shows, the country's economic activity and the revenues still depends on oil revenues.³⁰⁶ The signing of the JCPOA offered Iran new opportunity to develop oil industry and increase its revenues. According to the World Bank's data, it is expected that GDP growth in the country will be driven by hydrocarbon production and oil revenues will increase. The Bank's data estimates that real GDP growth in the country will reach to 4.8 percent in 2017.³⁰⁷ Some analysts believes that Iran would be able to produce 1 million barrel per day of extra oil after the deal.³⁰⁸ While Nephew finds this estimates are optimistic³⁰⁹, after the deal, Iran's Ministry of Petroleum Bijan Zanganeh stated that they expect to raise the country's oil production up to 3.8-3.9 million barrel per day.³¹⁰ The country's oil production reached to 3.92 million barrel per day by November 2016, according to OPEC's data

³⁰⁴National Iranian Oil Company

³⁰⁵OPEC Annual Statistical Bulletin 2015

³⁰⁶Iran. (1 April 2016). The World Bank. <http://www.worldbank.org/en/country/iran/overview>

³⁰⁷*Ibid.*

³⁰⁸Nephew, R. (2015). Commentary on the Nuclear Deal between Iran and the P5+1. *The Center on Global Energy Policy at Columbia University's School of International and Public Affairs*. p. 3.

³⁰⁹*Ibid.*

³¹⁰Iran sees oil output up 1 mln bpd after curbs end (2 August 2015). *Reuters*. Retrieved from <http://www.reuters.com/article/iran-crude-idUSL5N10D01N20150802>

based on direct communication,³¹¹ through opening of new oil fields such as Yadavaran and North Azadegan and starting new projects to improve the country's petroleum industry.³¹² Hence, the country's oil production increased regularly after the signing of the JCPOA on July 2015. Jalilvand described Iran's progress in energy industry as modest so far and he says that the country is still waiting for an expansion in oil production although it reached its pre-sanction levels.³¹³

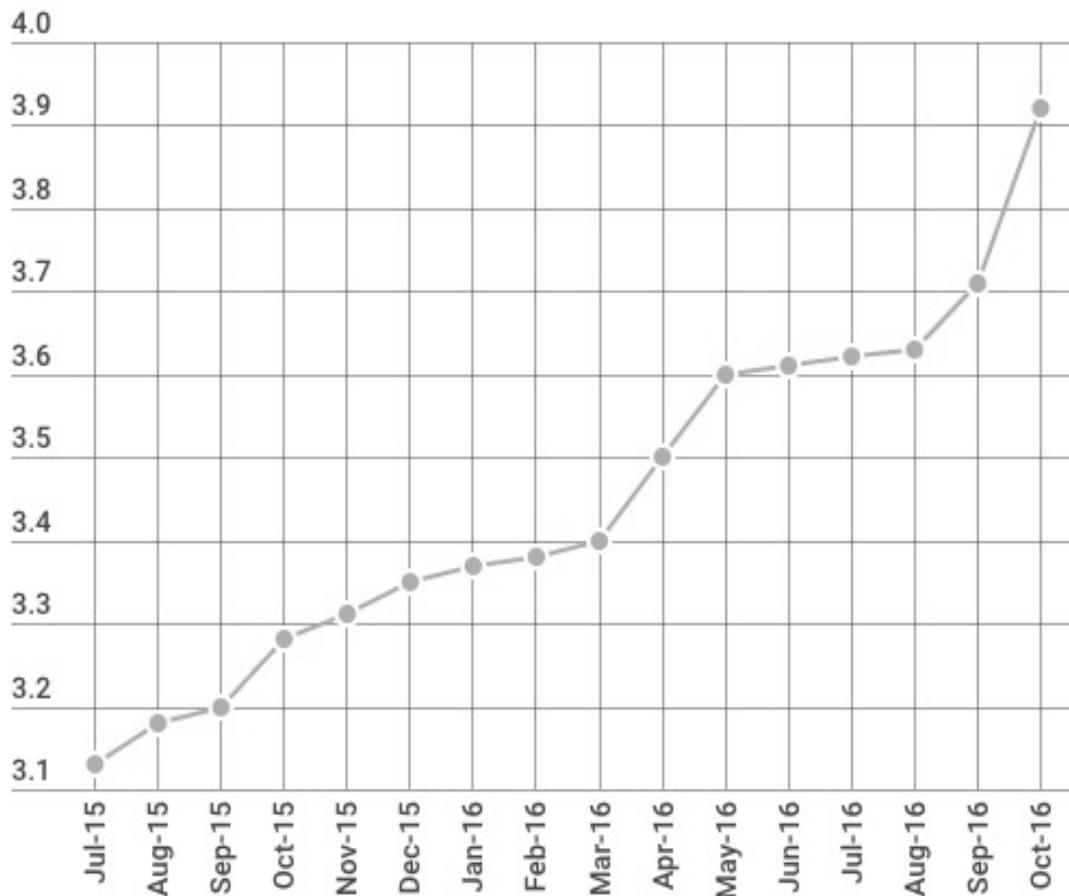


Table 13: Iran's oil production after the nuclear deal (million barrel per day)

Source: OPEC. Retrieved from http://www.opec.org/opec_web/en/publications/338.htm (The table is my compilation)

³¹¹OPEC Monthly Oil Market Report (11 November 2016)

³¹²Iran opens three new oilfields as it boosts output. (13 November 2016). *Reuters*. Retrieved <http://www.reuters.com/article/us-iran-oil-idUSKBN1380FJ>

³¹³Jalilvand, D.R. (2017). *Iranian Energy: A Comeback with Hurdles*. The Oxford Institute for Energy Studies. p.2.

Iran also accelerated its workings to renovate its technology and to make the environment feasible in order to increase oil production and export as it started to suffer economic troubles by the end of Ahmadinejad government. In this sense, Hassan Rouhani prioritized reforming the oil and gas industry when he came to power but by 2015 sanctions still was an obstacle before reaching oil and gas industries' full potential.³¹⁴ Although the country's oil production began to increase after the deal and relief of international sanction, Iran was in need of investments to promote oil industry. However, legal procedures and bureaucracy of the country were not convenient to attract foreign investors. Nephew said that "Iran itself is a difficult environment in which to work. The Iranian bureaucracy is formidable and it will be a real achievement if the Iranian government is able to deliver on its bait to international oil companies and others to make the process less painful".³¹⁵ In this context, Rouhani administration introduced the new Iran Petroleum Contract which allows international companies to participate in all phases of an upstream project, including production³¹⁶ and it was approved by the Iranian cabinet in August 2016 and endorsed by the Parliament in September 2016.³¹⁷ Under the new IPC, companies can establish a joint-venture agreement with the NIOC to manage oil and natural gas exploration, development and production projects; however they will not have ownership of the reserves.³¹⁸ Chairman of Oil Contracts Restructuring Committee of the Iranian Ministry of Petroleum, Seyed Mehdi Hosseini said that IPC

³¹⁴Mohamedi, F. (2015). The Oil and Gas Industry. In R. Wright (Ed.), *The Iran Primer: Power, Politics, and US Policy* (Chapter 4, Economy) Retrieved from <http://iranprimer.usip.org/>

³¹⁵Nephew, R. (2015). Commentary on the Nuclear Deal between Iran and the P5+1. *The Center on Global Energy Policy at Columbia University's School of International and Public Affairs*. p. 3.

³¹⁶Iran (19 June 2015). U.S. Energy Information Administration. p. 3. Retrieved from <https://www.eia.gov/beta/international/analysis.cfm?iso=IRN>

³¹⁷Iran's New Oil Contract Model Receives Final Approval by Cabinet. (03 August 2016). *Tasnim News Agency*. Retrieved from <https://www.tasnimnews.com/en/news/2016/08/03/1148062/iran-s-new-oil-contract-model-receives-final-approval-by-cabinet>

³¹⁸Iran (19 June 2015). U.S. Energy Information Administration. p. 3. Retrieved from <https://www.eia.gov/beta/international/analysis.cfm?iso=IRN>

is paving the way for both Iran and oil companies to balance risks and rewards.³¹⁹ According to the Iranian Opportunity report of Afraz Advisers, which provides independent information and guidance to international companies willing to enter Iran's oil and gas market, through the new contract, the National Iranian Oil Company wants to encourage participation from international oil companies to address gaps in the local market.³²⁰ Iran aims to rid its old buy-back model and provide more flexibility for international oil companies to explore and produce in the country. In the old contracting model, international companies provide the investment and equipment for a fixed price in exchange for oil and gas that they produce in Iranian fields and in return Iran gains operation rights in the field when the companies' contract expires.³²¹ However, in the new IPC, the NIOC sets up joint ventures with international oil companies to participate in almost all aspects of energy deals and projects, from management and exploration.³²² According to Afraz Advisers' report, the main objectives of the new IPC is to enable information sharing on technical and management issues, along with transfer of technology in order to improve recovery, drilling and related services.³²³ Hence, IPC will help Iran to find and attract international partners who have related technology. Former Head of Iran's Oil Ministry's Caspian Sea and Central Asia Department Mahmoud Khaghani says that Iran aims to use the best and latest technology to produce oil and gas and for this reason, with the IPC, it proposes a joint venture to international oil companies in order to develop existing oil fields, to find new fields, and to increase the efficiency

³¹⁹Zengin, D. (4 October 2016). Iran braces for oil, gas investm. Via new contract model. *Anadolu Agency Energy News Terminal*. Retrieved from <http://aaenergyterminal.com/searchdetail.php?newsid=9623900>

³²⁰The Iranian Opportunity: A Report Detailing Oil & Gas Sector Opportunities Available to International Companies in Iran. (2016). *Afraz Advisers*. UK: Afraz Advisers Ltd. p. 4.

³²¹The Iranian Opportunity: A Report Detailing Oil & Gas Sector Opportunities Available to International Companies in Iran. (2016). *Afraz Advisers*. UK: Afraz Advisers Ltd p. 9.

³²²Zengin, D. (4 October 2016). Iran braces for oil, gas investm. Via new contract model. *Anadolu Agency Energy News Terminal*. Retrieved from <http://aaenergyterminal.com/searchdetail.php?newsid=9623900>

³²³The Iranian Opportunity: A Report Detailing Oil & Gas Sector Opportunities Available to International Companies in Iran. (2016). *Afraz Advisers*. UK: Afraz Advisers Ltd p. 10.

in production.³²⁴ This means that the country is working to provide a convenient legal environment to international companies to benefit from their technological knowledge. As the sanctions were lifted and Iran accelerate its development to revive its oil industry, international oil companies also revive their contacts with the country and in the aftermath of the nuclear deal several foreign oil companies including Shell and Total visited the country and signed preliminary agreements with Iran. In December 2016, Royal Dutch Shell signed a Memorandum of Understanding with the National Iranian Oil Company to assess investment potential in Iran's Azadegan, Yadavaran and Kish oil and gas fields.³²⁵

In addition to oil production, after the nuclear deal, there were also expectations regarding the country's oil export. It is believed that Iran will be available to double its current exports of 1 million barrels per day of crude oil within 6 months once it is sanction free³²⁶ because after the removal of sanctions the country will be able to export its oil as much as it wishes and the new companies will be able to work in the country. Iranian Minister of Petroleum stated that Iran's Iranian oil exports rose to 2 million barrels per day from 970 thousand barrels per day compared to 2013, in the first five months of 2016 after relief of the sanctions.³²⁷ The country's oil export began to rise, as shown in *Figure 2*, and Asian countries such as China, India, South Korea and Japan became the main destination of Iranian oil, according to ClipperData quoted in CNN Money.³²⁸

³²⁴Khaghani, M. (2016). IPC: New Opportunities for Upstream & Downstream in a Power Point presentation (Power Point slide 6).

³²⁵Zengin, D. (8 December). Shell and Iran sign preliminary oil and gas agreement. *Anadolu Agency Energy Terminal*. Retrieved from <http://aaenergyterminal.com/news.php?newsid=10292182>

³²⁶McQuaile, M. (28 August 2015). How will Iran's nuclear deal affect oil markets? *Platts*. <http://www.platts.com/news-feature/2015/oil/middle-east-energy-focus/index>

³²⁷Zangeneh: Iran's oil output hits 3.8mbd. (14 June 2016). ISNA. Retrieved from <http://en.isna.ir/news/95031715238/Zangeneh-Iran-s-oil-output-hits-3-8mbd>

³²⁸Egan, M. (16 June 2016). Iran's oil exports have tripled since late 2015. *CNN Money*. Retrieved from <http://money.cnn.com/2016/06/16/investing/iran-pumping-lots-more-oil-sanctions/>

Although Iran started to look for new buyers from the West, the country's loyal customers became India and China after the deal as well, as shown in *Figure 3*.³²⁹ In October 2016, Iran's oil export to Asian countries rose up 92 percent compare to the same period of 2015, according to latest statistics of the country's Oil Ministry.³³⁰ The figures showed that despite lifting of sanctions and the country's seeking of new consumers from the West, Asian countries are still the main destination of Iranian oil.

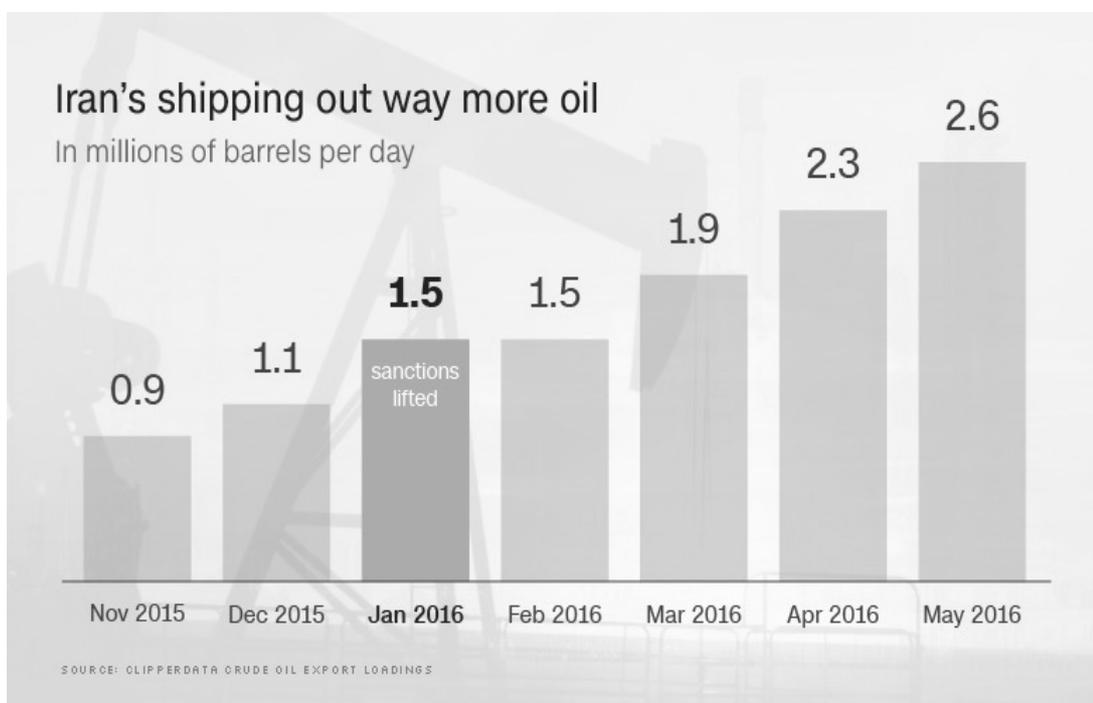


Table 14: Iran's oil export, 2016

Source: Egan, M. (16 June 2016). Iran's oil exports have tripled since late 2015. CNN Money. Retrieved from <http://money.cnn.com/2016/06/16/investing/iran-pumping-lots-more-oil-sanctions/>

³²⁹Gupte, E. and Highcloud, S. (31 October 2016). Analysis: Iran eyes new crude oil buyers, Asia remains linchpin. *Platts*. Retrieved from <http://www.platts.com/latest-news/oil/london/analysis-iran-eyes-new-crude-oil-buyers-asia-26582551>

³³⁰Iran's oil export to Asia rises up more than 90 percent. (29 October 2016). *IRNA*. Retrieved from <http://www8.irna.ir/en/News/82286028/>

Iranian crude and condensate exports (b/d)			
The key buyers of Iranian crude:			
Buyer	Sep b/d	Aug b/d	Change
India	602,546	458,880	143,576
China	549,889	570,865	(20,977)
South Korea	289,739	356,203	(66,464)
Japan	221,922	366,676	(144,754)
UAE	176,758	127,112	49,645
France	153,742	97,780	55,962
Turkey	147,029	179,561	(32,533)
Rest of world	353,331	265,955	87,375
Total	2,494,864	2,423,032	71,832

Table 15: Iran's oil export by countries, 2016

Source: Gupte, E. and Highcloud, S. (31 October 2016). Analysis: Iran eyes new crude oil buyers, Asia remains linchpin. *Platts*. Retrieved from <http://www.platts.com/latest-news/oil/london/analysis-iran-eyes-new-crude-oil-buyers-asia-26582551>

On the other hand, while Iran renewed its hopes to strengthen its oil industry and increase its oil revenues that are the basis of the country's economy, the global oil prices lost more than 70 percent in value since June 2014, trading between 48 and 50 dollars.³³¹ In this sense, Iqbal argues that Iranian economy remained weak because of low oil prices following the nuclear deal. He says that lower oil prices weaken the budget although the country boosted oil production and related investment.³³² Rising global oil production led to a decrease in oil prices. According to Yep's analysis in the *Wall Street Journal*, even the framework deal led to a fall in world oil prices.³³³

³³¹Zengin, D. (7 December 2016). Rising oil price to empower Iran's economic development. *Anadolu Agency Energy Terminal*. Retrieved from <http://aenergyterminal.com/searchdetail.php?newsid=10280940>

³³²Iqbal, Z. (2016). Iran's Post-Sanctions Economic Options. *Middle East Institute*. <http://www.mei.edu/content/irans-post-sanctions-economic-options>

³³³Yep, E. (2 April 2015). How Iranian Nuclear Deal Would Affect Oil Markets. *The Wall Street Journal*. Retrieved from <http://www.wsj.com/articles/how-iranian-nuclear-deal-would-affect-oil-markets-1428032400>

According to McQuaile, there was a strong possibility that Iran’s oil might lead to an oversupplies in the market.³³⁴ McQuaile remarks that the International Energy Agency noted that Iran produced around 2.87 million barrels per day in July 2015 and it was estimated to be capable of increasing its production to 3.4-3.6 million barrel per day when the sanctions remove.³³⁵ Hence it is expected that the Iranian oil might put a pressure on global oil prices in 2016, as the Saudi Arabia and the other OPEC countries are not expected to decrease their production to accommodate the Iranian oil.³³⁶ As McQuaile said Iran reached production level of 3.6 million barrel per day aftermath of the sanction lifting and it posed a pressure on oil market.

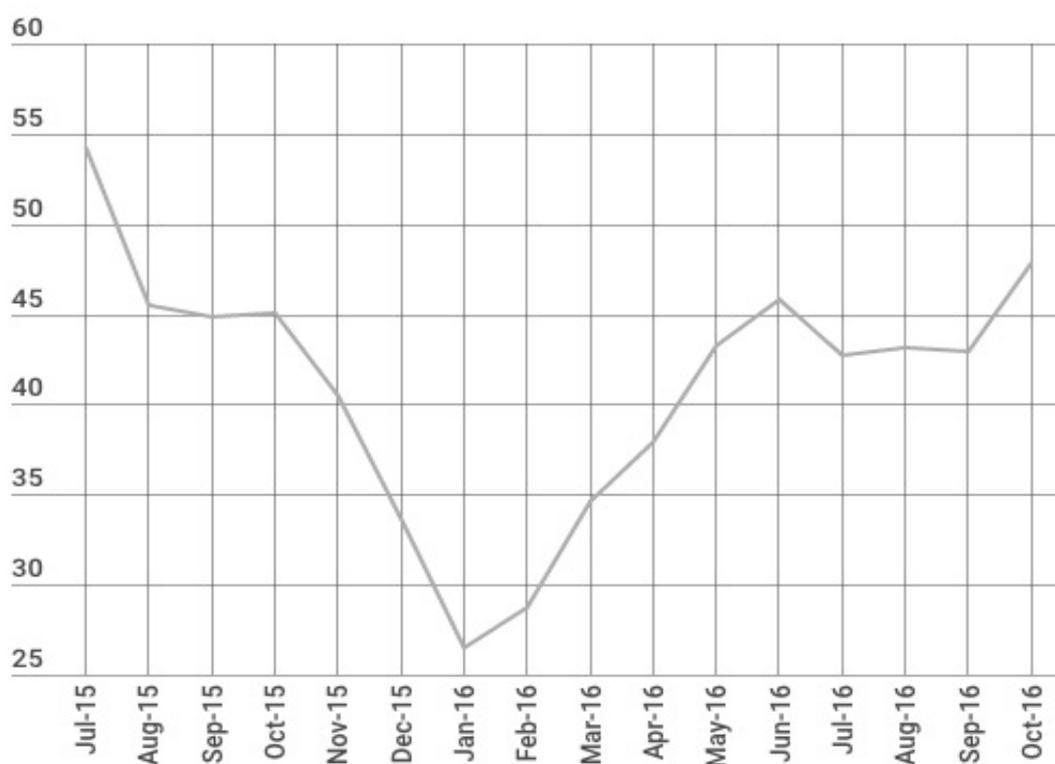


Table 16: Oil prices after the Nuclear Deal

Source: OPEC. Retrieved from http://www.opec.org/opec_web/en/publications/338.htm (The table is my compilation)

³³⁴McQuaile, M. (28 August 2015). How will Iran’s nuclear deal affect oil markets? *Platts*. <http://www.platts.com/news-feature/2015/oil/middle-east-energy-focus/index>

³³⁵*Ibid.*

³³⁶*Ibid.*

The major oil producers and OPEC members like Saudi Arabia were not satisfied with the low oil prices and they reached a deal at the end of September 2016 at an informal OPEC meeting held in Algeria to cut oil production to stabilize the market.³³⁷ However, OPEC's decision has encountered setbacks from Iran as the country desired to increase its production level in the aftermath of the lifting of sanctions. Nevertheless, OPEC unanimously agreed to lower oil production by 1.2 million barrels per day at the end of November 2016 at the Cartel's Vienne meeting.³³⁸ Under OPEC's agreement Iran has been given a special consideration and it allowed increasing its oil production by 90 thousand barrel per day limited to 3.7 million barrel per day.³³⁹ Briefly, after the lifting of nuclear sanctions Iran targeted to accelerate developments to revive its oil industry in order to boost its production and oil revenues. In this sense, the country first took steps to reform its oil contract regulations in order to attract foreign investors and they introduced new IPC. Following the deal, international oil companies also increased their contacts with the country to make investments in its energy sectors, particularly the country's rich oil fields.

5. 2. Natural gas sector

Iran's natural gas production growth was slow because of the international nuclear related sanctions, although the country holds the world's second largest natural gas reserves, according to the US Energy Information Administration.³⁴⁰ BP Statistical Review of World Energy 2016 report showed that the country holds 34 trillion cubic meters of natural gas at the end of 2015.³⁴¹ After the nuclear deal and lifting of

³³⁷Gamal, R., Lawler, A. And Soldtkin, V. (29 September 2016). OPEC agrees modest oil output curbs in first deal since 2008. *Reuters*. Retrieved from <http://www.reuters.com/article/us-opec-meeting-idUSKCN11Y18K>

³³⁸OPEC 171st Meeting concludes (30 november 2016). *OPEC*. Retrieved from http://www.opec.org/opec_web/en/press_room/3912.htm

³³⁹Zengin, D. (7 December 2016). Rising oil price to empower Iran's economic development. *Anadolu Agency Energy Terminal*. Retrieved from <http://aaenergyterminal.com/searchdetail.php?newsid=10280940>

³⁴⁰Iran. (2015). US Energy Information Administration.

³⁴¹BP Statistical Review of World Energy June 2016

sanctions, the international companies also began to focus on the country's gas field as well as oil fields. According to BP Statistical Review of World Energy 2016, Iran's natural gas production grew by 5.7 percent while the country's consumption 6.2 percent.³⁴² The statistics showed that Iran's gas production rose to 192.5 billion cubic meters to 182 billion cubic meters in 2015 compare to the previous year.³⁴³ The same year the country consumed 191.2 billion cubic meter gas, so it can be interpreted that it approximately used what it produced. In 2015, despite its sources, Iran exported 7.2 billion cubic meters of natural gas from Turkmenistan and 2 million cubic meters of gas from Azerbaijan and the country imported 7.5 billion cubic meters of gas in total.³⁴⁴

³⁴²*Ibid.*

³⁴³*Ibid.*

³⁴⁴*Ibid.*

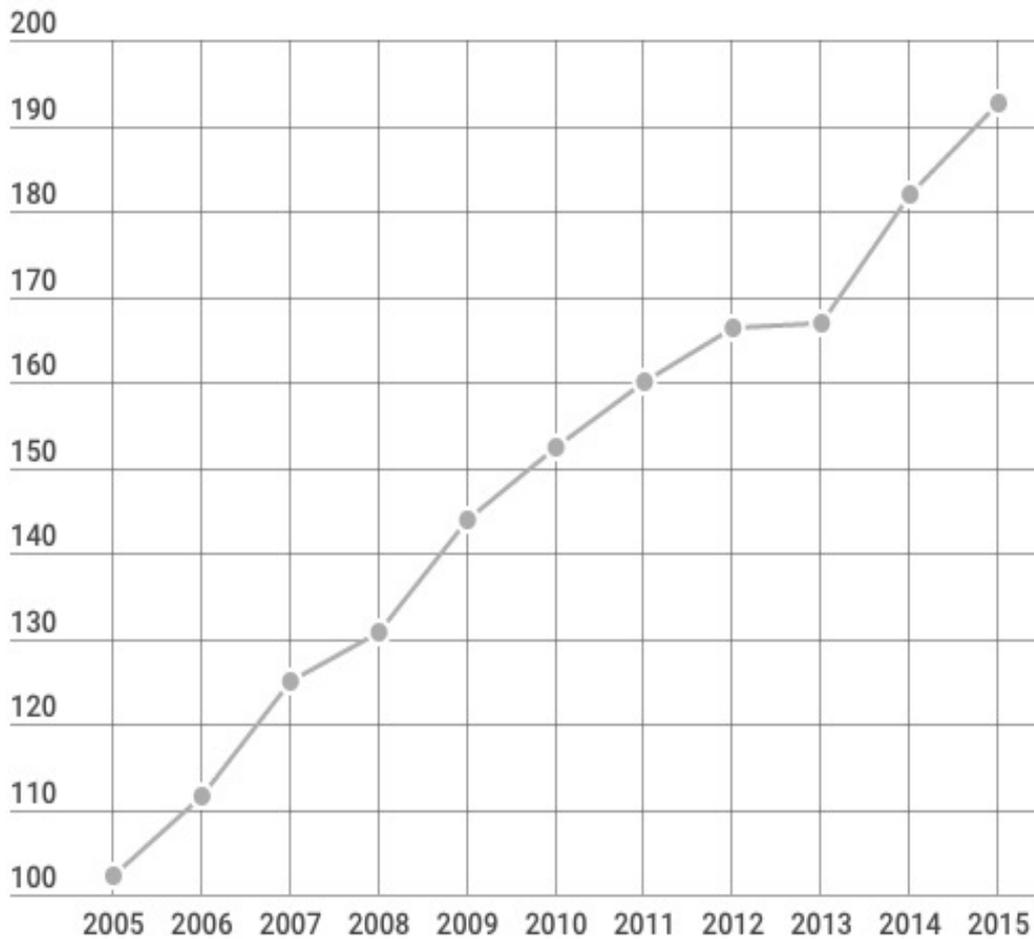


Table 17: Iran's natural gas production, 2005-2015 (billion cubic meters)

Source: BP Statistical Review of World Energy June 2016. Retrieved from <https://www.bp.com/content/dam/bp/pdf/energy-economics/statistical-review-2016/bp-statistical-review-of-world-energy-2016-full-report.pdf> (The table is my compilation)

In the post-sanction period, Iran desired to increase natural gas production and expand the market from 1.5 percent to 10 percent by the end of 2025 under the country's 2025 national vision and "economy of resistance" policy.³⁴⁵ Hence, Iran began to focus on the country's rich gas fields which have not been developed such as the South Pars field. For this reason, National Iranian Oil Company began to negotiate with international oil and gas companies to improve the country's gas fields. For instance, after the lifting of sanctions, French energy company Total and China National Petroleum Corp signed an agreement with National Iranian Oil

³⁴⁵Vakhshouri, S. (2015). Iran's Energy Policy After the Nuclear Deal. *Atlantic Council Global Energy Center*. p. 10.

Company for the development some phases of the South Pars field in the Persian Gulf.³⁴⁶ Also, the country signed a preliminary cooperation agreement with Royal Dutch Shell to assess potential investments in Iran's Kish gas fields.³⁴⁷ Hence, after the sanction relief Iran accelerated its work to attract foreign investors and to improve its oil production, along with its rich fields. Alireza Kameli, Director of the National Iranian Gas Export Company, in one of his interview said:

We are currently producing 700 million cubic meter (24.7 billion cubic feet) of natural gas per day. Within the next 3 years, according to our production sites, we are supposed to produce close to one 1 billion cubic meter per day. This means that each year 100 mcm will be added to the current production capacity of gas in Iran. This is part of the new government drive of introducing the Iran Petroleum Contract to foreign companies. Ten out of 50 of our new projects are related to gas fields, both onshore and offshore. If the IPC is welcomed by foreign investors, we think that production capacity could even grow to more than 1.4 billion cubic meter per day by early 2019.³⁴⁸

In the post sanction period, Iran also take possible pipeline projects into consideration to deliver its natural gas to the global markets. For instance, Trans-Anatolian Natural Gas Pipeline was discussed as options for delivering Iranian gas to Europe but it has not been confirmed by officials. Tanchum estimated that Iran will likely have 24.6 billion cubic meters of natural gas for export beyond its current commitments.³⁴⁹ He claims that Iran might export its gas to three markets which are European Union and Turkey via TANAP, India via Iran-Oman-India pipeline or

³⁴⁶Zengin, D. (8 November 2016). Total and Iran sign deal for world's largest gas field. Anadolu Agency Energy Terminal. Retrieved from <http://aaenergyterminal.com/searchdetail.php?newsid=9975876>

³⁴⁷Mustafa Melih Ahishali (8 December 2016). Shell and Iran sign preliminary oil and gas agreement. *Anadolu Agency*. Retrieved from <http://aaenergyterminal.com/searchdetail.php?newsid=10292182>

³⁴⁸Iran's LNG strategy. (8 June 2016). *The Oil & Gas Year*. Retrieved from <http://www.theoilandgasyear.com/interviews/irans-lng-strategy/>

³⁴⁹Tanchum, M. (2015). A Post-Sanctions Iran and the Eurasian Energy Architecture: Challenges and Opportunities for the Euro-Atlantic Community. *Atlantic Council*. p.1

China via Turkmenistan or Pakistan.³⁵⁰ Kameli, in his interview, also mentioned about any possibility of gas cooperation between Iran and Europe and he said:

Construction of the IGAT-9 pipeline could facilitate natural gas exports to Europe via Turkey if NIOC decides to enter the European gas market in the future. Currently, we have a contract to export 10 billion cubic meter of natural gas per year to Turkey. Any drastic increase to this contractual volume is certainly subject to develop current export/import facilities from both sides as well. At the moment, and with the current international gas prices prevailing in European gas hubs, from the economic point of view, I cannot see currently any logic to export Iranian natural gas to Europe by transporting it 4,000-5,000 kilometer from the south part of Iran (the South Pars gas field) to nearest European gas markets, which would result in a minimum of 4 to 5 per million dollars of transportation and transit costs. On the other hand, due to the operational, new and planned energy consuming projects, we are facing huge and fast-growing gas demand markets in the countries located in the southern part of the country, such as the UAE, Kuwait, Bahrain, Oman, Iraq and even Saudi Arabia, with a maximum 200-kilometer distance to our gas fields, which clearly provide much better possibilities to tie in gas export contracts with them in comparison with European gas consumers.³⁵¹

Hence, Kameli finds close locations like the Gulf countries more feasible than Europe to export Iranian gas. On the other hand, Tazimi quoted in a piece that Iran has able to shape energy market and it has ability to help Europe to diversify its natural gas supply.³⁵² As Tazimi said Iran has capacity to supply Europe's gas demand however Khlebnikov argues that the country has no sufficient infrastructure to deliver its gas to the market.³⁵³

³⁵⁰*Ibid.*

³⁵¹Iran's LNG strategy. (8 June 2016). The Oil & Gas Year. Retrieved from <http://www.theoilandgasyear.com/interviews/irans-lng-strategy/>

³⁵²Recknagel, C. (15 May 2014). Iran Says Ready to Supply Natural Gas to Europe. *Radio Free Europe Radio Liberty*. Retrieved from <http://www.rferl.org/a/iran-says-ready-to-supply-natural-gas-to-europe-/25386226.html>

³⁵³Khlebnikov, A. (17 June 2015). Can Iran really enter the European energy market and challenge Russia? *Middle East Monitor*. Retrieved from <https://www.middleeastmonitor.com/20150617-can-iran-really-enter-the-european-energy-market-and-challenge-russia/>



Figure 6: Iran's natural gas map

Source: Jalilvand, D. (2013). Iran's gas exports: can past failure become future success? *The Oxford Institute for Energy*.

Iranian gas could only be reached to market via pipeline or as LNG but for now the country need to modernize its transportation system and infrastructure in order to achieve it. Kameli also mentioned about three LNG Projects which are Persian LNG, Pars LNG and Iran LNG. However, the foreign partners of the projects had to leave the country because of the sanctions and only Iran LNG remained as the LNG project in the country because of left of foreign partners but now he believed that the project will be completed minimum in three years as the sanctions released and LNG of Iran LNG facility will be exported soon. Moreover, Kameli also stated that there is a possibility to enter into LNG market to supply natural gas to Oman and Iran will export 28.3 million cubic meter per day of natural gas to Oman after the construction of pipeline.³⁵⁴ Two countries signed an agreement in 2015 to export 10 bcm per year for 25 years but the project is waiting for infrastructure and pricing agreement.³⁵⁵ Briefly, in the post sanction period, Iran did not neglect its rich natural gas resources. It intensified its workings and negotiations regarding to attract new investors to develop its natural gas production and the country engaged in new discussions to realize possible natural gas cooperation. The new destination also has been discussed for the export of Iranian gas however, the country's infrastructure and transportation system is not sufficient to reach its resources to the market.

5. 3. Power industry

After the sanction relief following the nuclear deal, Iran's electricity generation is on the verge of transformation to meet the country's domestic needs. According to Energy Pioneers' Iran's Power Industry Analysis, the electricity sector in Iran had able to meet the country's fast growing power demand despite the sanctions, lack of technology, financial challenges and mismanagement.³⁵⁶ During sanctions, the country's power industry suffered from lack of investment and it gradually weakened just as oil and gas sectors. Iran's electricity consumption increased steadily over

³⁵⁴Iran's LNG strategy. (8 June 2016). The Oil & Gas Year. Retrieved from <http://www.theoilandgasyear.com/interviews/irans-lng-strategy/>?

³⁵⁵Vakhshouri, S. (2015). Iran's Energy Policy After the Nuclear Deal. *Atlantic Council Global Energy Center*. p. 12.

³⁵⁶Iran's Power Industry Analysis: Investment Risks & Opportunities in Post-Sanctions Era. (2015). *Energy Pioneers Ltd.*

years while the country's power industry was getting weaker. According to BP Statistical Review of World Energy Report, the country's energy consumption was 267.2 million tones oil equivalent while it was 177.5 million tones oil equivalent 10 years ago.³⁵⁷ The report of the U.S. Energy Information Administration shows that Iran increased electricity prices, as a part of its energy subsidy reform, to limit its growing demand growth.³⁵⁸ The country's primary source of electricity generation is natural gas and it is accounted for almost 70 percent of total generation in 2013, oil with 25 percent, and hydropower with 5 percent, nuclear with 3 percent, coal with 1 percent and renewables with 1 percent are remaining sources used in electricity generation.³⁵⁹ In 2013, Iran generated almost 224 billion kilowatt-hours of electricity and the country's first nuclear power plant at Bushehr contributed to this amount with its 700 megawatts capacity. In 2012, Iran exported 11 billion kWh of electricity to Armenia, Pakistan, Turkey, Iraq, Afghanistan and it imported 3.9 billion kWh of electricity from Azerbaijan and Armenia under swap agreement.³⁶⁰ The country still trades electricity with Afghanistan, Armenia, Azerbaijan, Iraq, Pakistan, Syria, Turkmenistan and Turkey and its export is about 6 terawatt hour per year.³⁶¹

³⁵⁷BP Statistical Review of World Energy June 2016

³⁵⁸Iran (19 June 2015). U.S. Energy Information Administration. p. 14. Retrieved from <https://www.eia.gov/beta/international/analysis.cfm?iso=IRN>

³⁵⁹*Ibid.*

³⁶⁰*Ibid.*

³⁶¹Nuclear Power in Iran (2016). *World Nuclear Association*. Retrieved from <http://www.world-nuclear.org/information-library/country-profiles/countries-g-n/iran.aspx>

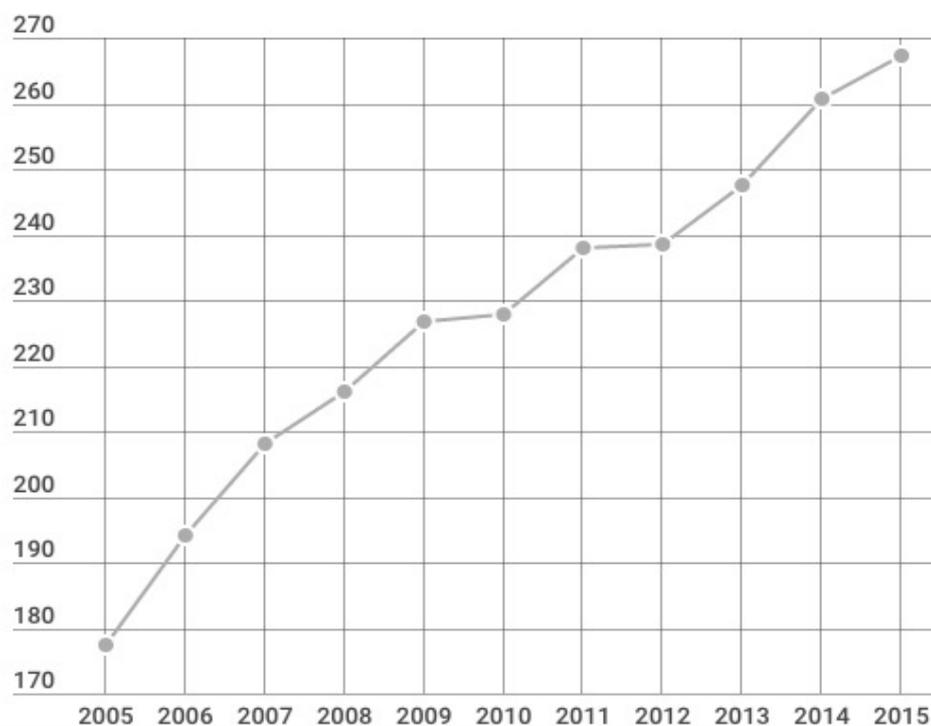


Table 18: Iran's energy consumption, 2005-2015

Source: BP Statistical Review of World Energy June 2016.

<https://www.bp.com/content/dam/bp/pdf/energy-economics/statistical-review-2016/bp-statistical-review-of-world-energy-2016-full-report.pdf> (Graph is my compilation)

Electricity Generation, 2006-2014

Year	Nuclear (Billion kilowatthours)	Renewables (Billion kilowatthours)	Fossil Fuels (Billion kilowatthours)
2006	0	18	164
2007	0	18	175
2008	0	5.1	197
2009	0	7.4	201
2010	0	9.6	210
2011	(s)	12	214
2012	1.3	13	225
2013	3.9	16	235
2014	3.7	NA	234

(s): Value is too small for the number of decimal places shown

Table 19: Electricity generation in Iran, 2006-2014

Source: Energy Information Administration. Retrieved from

<https://www.eia.gov/beta/international/country.cfm?iso=IRN> (The table is my compilation)

Following the lifting of sanctions, the Iranian Ministry of Energy also initiated a plan to solve infrastructural problems in the country's power industry. According to Energy Pioneers' analysis, the Ministry of Energy introduced projects worth 28 billion dollar in order to attract foreign investment in the next 10 years.³⁶² The Ministry is planning to construct 35 new power stations and it is expected to be used in domestic consumption but also Iran wants to exports its electricity to neighbor countries.³⁶³ Additionally, Iran began to encourage clean energy by supporting renewable energy sources as the country has high solar insolation and wind density. Iran currently produces 200 megawatt of electricity from renewable sources while total power generation stands at 74 thousand megawatt.³⁶⁴ The government decided to increase investing in renewable energy in 2015 with an aim of 5,000 megawatt of installed capacity from renewable energy in the next 5 years and it guaranteed power purchase for a period of up to 20 years.³⁶⁵ Iran also began to talk on renewable energy projects with international companies after the lifting of sanctions. Especially, German energy companies attached utmost importance to Iran's renewable energy sector after the nuclear deal. For instance, lastly, a German energy company signed a memorandum of understanding for the construction of two wind and solar power plants, which are worth about 104 million dollars, in the south of Iran.³⁶⁶ Hence, Iran took some steps to develop renewable energy sector in the country in order to boost power generation. In addition to hydrocarbons and renewable sources, Iran is also benefited from nuclear power in electricity generation. In Iran, currently, Bushehr 1 Nuclear Power Reactor, which started its operation in 2013, generates 915 megawatt

³⁶²Iran's Power Industry Analysis: Investment Risks & Opportunities in Post-Sanctions Era. (2015). *Energy Pioneers Ltd.*

³⁶³Iran (19 June 2015). U.S. Energy Information Administration. p. 14. Retrieved from <https://www.eia.gov/beta/international/analysis.cfm?iso=IRN>

³⁶⁴Bizaer, M. (10 September 2016). Why renewable energy is booming in Iran. *Al Monitor*. Retrieved from <http://www.al-monitor.com/pulse/originals/2016/10/iran-renewable-energy-bushehr-wind-solar-development-plan.html>

³⁶⁵Renewable Energy in Iran (2016). Watson Farley & Williams.

³⁶⁶Germans sign power MoU with Iran. (18 December 2016). *Mehr News Agency*. Retrieved from <http://en.mehrnews.com/news/122073/Germans-sign-power-MoU-with-Iran>

of electricity.³⁶⁷ The government also plans to construct new reactors which will start their operation by 2025.³⁶⁸ However, according to the World Nuclear Association, there are some concerns on nuclear safety on the country's power reactor as they are planning to build seismic criteria.³⁶⁹ Nevertheless, Iran committed to develop its electricity sector by increasing the share of renewables and nuclear. In this context, the country started to engage with international power industry, along with providing new incentives, in order to increase and modernize its power industry.

5. 4. Conclusion

The sanctions relief started to revive Iran's energy sectors-oil, natural gas and renewable energy. In the aftermath of the deal and sanction relief, an optimistic point of view was prevalent about future of Iranian energy market and it was welcomed with hope since they thing that the sanction relief would pave the way for improvement of energy sectors and regaining its power. Even the nuclear negotiation process got foreign investors excited, as they consider the country as a big opportunity and market to make investments. Following the deal, several delegations including Britain, France, Germany, Italy, Japan and South Korea have visited Iran to explore possible future cooperation in energy field, particularly to invest on Iran's oil and gas. The lifting of sanctions provided an opportunity for the country to promote and modernize its energy sectors through new foreign investments and cooperation. According to Vakhshouri, Iran's energy policy moved the country self-reliance as the sanctions prevented the country from having technology and investments.³⁷⁰ After sanction relief following the nuclear deal, Iran started to work in order to regain and expand its market share of oil and natural gas. The country took steps to attract investments and technology. For instance, it re-regulated its

³⁶⁷Nuclear Power in Iran (2016). *World Nuclear Association*. Retrieved from <http://www.world-nuclear.org/information-library/country-profiles/countries-g-n/iran.aspx>

³⁶⁸*Ibid.*

³⁶⁹Nuclear Power in Iran (2016). *World Nuclear Association*. Retrieved from <http://www.world-nuclear.org/information-library/country-profiles/countries-g-n/iran.aspx>

³⁷⁰Vakhshouri, S. (2015). Iran's Energy Policy After the Nuclear Deal. *Atlantic Council Global Energy Center*. p. 18

petroleum contract. Not last but not least, the country engaged in energy diplomacy by negotiating with international companies and states, also neighbor countries as it regarded as transit points to export its resources. Iran initiated a new process for each energy sectors after the sanction relief. In oil sector, the country aimed an increase both in production amount and in trading volume. For this reason, Iran introduced new Petroleum Contract, which replace the country's old buy back model with new contracting model in oil industry, to attract foreign investors. Additionally, Iran began to negotiate and sign preliminary agreements with international companies to develop exploration and production projects in country's rich oil fields. In gas sector, the country attached utmost importance on gas industry because of many energy experts' emphases on significance of gas in 21st century. Iran began to negotiate and cooperate with international energy companies in order to develop projects in the country's gas fields as well as oil. In addition to oil and gas, in electricity sector, Iran also started to focus on improvement of renewable energy sources like solar and wind, which are one of the main component of energy transition from fossil fuels, as well as all over the world and they also engaged in seeking cooperation with foreign investors in this field. Although Iran made efforts to regain its power in energy sectors, the lack of infrastructure in the country does not allow developing the country's energy industry quickly. The deal directed Iran to follow more extrovert policy in energy but it had a limited impact on development of Iran's energy market due to continuity of several sanctions, low oil prices, structure of Iranian energy market, and the risk of breakdown of deal. Hence the concrete outcomes and sustainability of the nuclear deal would be achieved in long term

CHAPTER 6

CONCLUSION

This thesis examined the evolution of Iranian energy sector along with the country's energy policy, before and after the nuclear deal signed in 2015. The main aim of the thesis is to observe the impact of the deal and sanction relief on the country's energy sector. First, the thesis summarized the history and development of Iranian energy sector from 1908 to 2006, as it is significant to understand the evolution of Iranian energy sector, along with two regimes' policies. In this sense, the thesis reminded that Iranian energy sector and policy were dominated by the foreigners until the end of Pahlavi era. Not only the country's oil and gas industry, also its nuclear program were introduced and shaped with the assistance of the Western countries. For this reason, despite Iran held ownership of resources, it had not had a say in management of resources and it was underpaid. Although the country's energy sector experienced its shining period during Pahlavi era, it was fully depended on foreign powers. The foreign influence continued until the Iranian Revolution of 1979, despite the attempts to nationalize oil industry. The new Islamic Regime turned energy policy upside down, kept foreigners out of Iranian energy industry and nationalize energy sector. The anti-Western policies of the new regime hindered Western domination in Iranian energy sector. Following the Revolution, deterioration of relations with West and the Iran-Iraq War posed an obstacle before improvement of the country's energy sector. Despite increasing energy demand, the supply remained limited because of aging refineries, sanctions and economic constraints. Additionally, Iran's nuclear program was approached with suspicion by the West and the nuclear crisis began with reveal of documents regarding Iran's nuclear activity in early 2000s. Although the IAEA's investigations could not reach the concrete findings regarding allegations on Iran's nuclear weapon production, uncompromising approach the government of that period

ended up with the nuclear sanctions for the country. Hence, the nuclear crisis sanctions imposed new burdens on Iran's energy sector.

Second, the thesis examined the sanctions, which were imposed by the US, EU and UN, and their impacts on Iranian energy policy and sectors-oil, gas and nuclear. Iran faced with the sanctions from the beginning of the new regime but the targets of sanctions differed from each other. The sanctions imposed with the nuclear crisis of 2000s aimed at ensuring Iran's nuclear program for civilian use, while the first sanctions targeted to prevent the country's support for terrorism. The sanctions imposed on Iran due to the nuclear crisis divided into two, which are EU and UN sanctions. While the EU sanctions blocked economic activities of only EU countries with Iran, the UN sanctions had larger impact on the country's economy as it was binding for large scale. Iranian energy sectors were heavily affected from the sanctions because they banned trade of goods and technology which were required in development of energy sectors. The sanctions mainly targeted Iran's energy sectors as they were considered as a contributor to the country's nuclear activity. While the share of energy industries had a large ration in Iran's GDP, their contribution declined over the years due to the sanctions. The sanctions hindered the development of Iranian energy sectors, so the country could not strengthen its power in global energy arena despite it rich resource capacity. Although, oil and gas sectors could not be enhanced, the country maintained its export to mainly Asian countries in a limited way. Iran's limited energy transaction isolated the country from the global energy markets.

Third, the nuclear negotiations process between Iran and the five permanent members of the UN Security Council, which are the US, the UK, France, Russia and China, plus Germany (P5+1) and the Joint Comprehensive Plan of Action signed in 2015 were analyzed in the thesis. The plan offered a roadmap for settlement of Iranian nuclear crisis. While the JCPOA provide a solution for confrontation between Iran and the West, it also took a step to terminate the country's economic isolation. The plan allowed Iran to maintain its nuclear research and development activities, while it kept it under control. It assured the West that the country would not develop

any weapon. At the end of the comprehensive agreement, the International Atomic Energy Agency confirmed that the country complied with the conditions of the road map and the nuclear sanctions imposed on Iran were lifted gradually. The JCPOA had both supporters and opponents in Iran and international arena. International supporters of the deal claimed that it would enhance international peace by limiting Iran's nuclear program. Contrary, opponents believed that the deal increased the risk of conflict in the region as it strengthened Iran. On the other hand, Iranian supporters argued that the deal allowed the country to reintegrate into the global economic system and it would bring prosperity along itself. However, opponents in the country concerned that the deal with the West would undermine the regime's basis. Nevertheless, the nuclear deal became a milestone for Iran as it paved the way for the country to end its isolation and regain its power in energy world as the sanction relief would enable Iran to revive its sectors.

Fourth, the thesis examined reflects of the nuclear deal and the effects of the sanction relief on Iranian energy sectors. The last part of the thesis evaluated the new cooperation and investment plans in Iranian oil, gas and electricity sectors in the aftermath of the nuclear deal. The ease of sanctions provided an opportunity for the country to enhance and modernize its energy sectors via foreign cooperation and investments. Following the nuclear deal, foreign delegations including Britain, France, Germany, Italy and Japan visited Iran to encourage cooperation in oil, gas and electricity industry. Iran aimed to revive its energy sectors with the sanction relief in order to increase its market share in energy sectors. The country first made new legislations to re-regulate the petroleum contract that would provide more flexible environment for international oil and gas companies and to attract new investments. Then, it conducted energy diplomacy and negotiations with countries or international oil and gas companies to welcome new investments, transfer technology and expand export opportunities. Iran also focused on renewable energy in order to diversify its sources and lower its dependency on oil and gas. In this sense, the country sought for cooperation with international companies to benefit from their experiences and technologies. Despite the fact that Iran moved to improve energy sectors and to regain power in global energy market, several obstacles such as

legislative and banking systems, the lack of infrastructure in the country hindered development of the country's energy industry.

In conclusion, the thesis showed that the relief of sanction following the nuclear deal between Iran and P5+1 countries, had limited impact on development of Iranian energy market due to political and economic obstacles such as maintenance of several sanctions, low oil prices, non-transparent close structure of the Iranian energy market and the risk of breakdown of the deal. The deal paved the way Iran to follow more extrovert policy in energy. In the aftermath of the nuclear deal, the country took actions to revive its energy sectors, particularly hydrocarbon industry. However, expected improvement could not be reached in Iranian energy market because of political uncertainties and economic obstacles.

The sanctions imposed on Iran were not completely removed after the nuclear deal. The JCPOA foresight a gradual lifting of the sanction and there were also the sanctions that are imposed by the US apart from nuclear related issues. Additionally, the Trump administration in the US supports the continuation of the sanctions, unlike the previous US government which reached the nuclear deal with Iran. Hence, the gradual lifting of the sanctions restrained Iran from doing business with global market and remaining sanctions still posed an obstacle for the country to use full potential of its energy sectors.

Additionally, although Iran increased its oil production and export level in a considerable extent, the low oil prices in global oil market and the OPEC agreement regarding output cut hindered enhancement of the Iranian oil industry. As oil is the main component of the country's energy market and the source of revenue, the country's economy could not benefit from its rich oil sources. Iran was limited in oil production due to the OPEC' output reduction decision to increase the prices in the market. Thus, the situation in oil market prevented Iran to reach its aim of boosting oil production.

Also, the complex political structure and regulations regarding energy in Iran still posed obstacles before rapid development of new investments. The country introduced new petroleum contract to attract international oil companies by easing the conditions for foreign investments. Iran's new petroleum contract foresee to enable both Iranian and international oil companies to balance risk and awards and it provides more flexibility to foreign investors to explore and produce in the country. However, international companies follow a prudent strategy to make investment in the country, despite the new petroleum contract. The closeness of the country, in terms of politics and economics, could not provide an encouraging environment for doing energy business in Iran.

Last but not least, uncertainty and the risk of a breakdown of the nuclear deal became an essential threat for the rapid and full achievement of the nuclear deal. Particularly after the presidency of Donald Trump, who is against to the nuclear deal and keen to abolish it, opposition against the nuclear deal regained strength. Trump's negative discourses and attitude towards Iran and the nuclear deal endangered the continuity of the deal. The risk of the deal's breakdown also posed an obstacle before the progress of the Iranian energy industry as it created an uncertainty for policy makers and investors. Hence, the impact of the nuclear deal and relief of the sanctions remained limited on development of Iranian energy sector in a short period of time. The tangible results of the deal and sanction ease would be observed in the long term the conjuncture will completely settle for Iran.

REFERENCES

- Abrahamian, E. (2001). The 1953 Coup in Iran. *Science & Society*. Vol. 65, No.2. p.182-215.
- Abrahamian, E. (2008). *A History of Modern Iran*. New York: Cambridge University Press.
- Afrasiabi, K. And Kibaroglu, M. (2005). Negotiating Iran's Nuclear Populism. *The Brown Journal of World Affairs*, Vol. 12, No. 1, p. 255-268.
- Ahishali, Mustafa Melih (8 December 2016). Shell and Iran sign preliminary oil and gas agreement. *Anadolu Agency*. Retrieved from <http://aaenergyterminal.com/searchdetail.php?newsid=10292182>
- Albright, D. (2005). Timeline of Iran's Path to Nuclear Weapons. In J.S. Yaphe and C. D. Lutes (Ed.), *Reassessing the Implication of a Nuclear-Armed Iran*. Washington D.C.: Institute for National Strategic Studies National Defense University.
- Aghazadeh, M. (2013). A Historical Overview of Sanctions on Iran and Iran's Nuclear Programme. *Journal of Academic Science*, Vol. 56, p. 137-160.
- Amuzegar, J. (1997). Iran's Economy and the US Sanctions. *Middle East Journal*. Vol. 51, No.2, p. 185-199.
- Ashraf, P. (2016). Natural Gas Industry in Iran. *Encyclopaedia Iranica*. Retrieved from <http://www.iranicaonline.org/articles/natural-gas-industry-in-iran>
- Bahgat, G. (2005). Nuclear Proliferation in the Middle East: Iran and Israel. *Contemporary Security Policy*, Vol. 26, No.1, p. 25-43.
- Bahgat, G. (2006). Nuclear Proliferation: The Islamic Republic of Iran. *Iran Studies*, Vol. 39, No.3, p. 307-327.
- Bizaer, M. (10 September 2016). Why renewable energy is booming in Iran. *Al Monitor*. Retrieved from <http://www.al-monitor.com/pulse/originals/2016/10/iran-renewable-energy-bushehr-wind-solar-development-plan.html>
- Carey, J.P.C. (1974). Iran and Control of its Oil Resources. *Political Science Quarterly*, vol. 89, no. 1, p. 147-174.
- Carey, J. P. C and Carey, A. G. (1960). Oil and Economic Development in Iran. *Political Science Quarterly*, Vol. 75, No.1, p. 66-86.
- Clinton, A.J. (5 August 1996) Remarks on Signing the Iran and Libya Sanctions Act of 1996 and an Exchange with Reporters. Online by Gerhard Peters and John

- T. Woolley. *The American Presidency Project*. Retrieved from <http://www.presidency.ucsb.edu/ws/index.php?pid=53160#axzz1rCWoGB2A>
- Chang, H. P. (2011). China's Policy toward Iran and the Middle East. *The Journal of East Asian Affairs*. Vol. 25, No.1. p. 1-14
- Cordesman, A.H. (2004). *Energy Development in the Middle East*. Washington D.C.: Center for Strategic and International Studies.
- Crane, K., Lal, R. And Martini, J. (2008). *Iran's Political, Demographic and Economic Vulnerabilities*. USA: The Rand Corporation.
- Curzon, G.N. (1892). *Persia and the Persian Question, Volume I*. London: Longmans, Green & Co. Retrieved from http://bahai-library.com/curzon_persia_persian_question&chapter=18
- Damianova, K.K. (2015). Iran's re-emergence on global energy markets: opportunity, challenges and implications. *The European Centre for Energy and Resources Security and the Konrad-Adenauer-Stiftung*.
- Davenport, K. (2012). Sanctions Tighten on Iran. *Arms Control Today*. Vol. 42, No.6, p. 29-31.
- Dehghanpisheh, B. And Lewis, O. (3 April 2015). Iran president views nuclear deal as start of new relationship with world. *Reuters*. Retrieved from <http://www.reuters.com/article/us-iran-nuclear-idUSKBN0MQ0HH20150403>
- Downs, E., & Maloney, S. (2011, March). Getting China to Sanction Iran: The Chinese-Iranian Oil Connection. *Foreign Affairs*, Vol. 90, No. 2, p. 15-21.
- Egan, M. (16 June 2016). Iran's oil exports have tripled since late 2015. *CNN Money*. Retrieved from <http://money.cnn.com/2016/06/16/investing/iran-pumping-lots-more-oil-sanctions/>
- Elm, M. (1992). *Oil, Power and Principle: Iran's Oil Nationalization and its Aftermath*. New York: Syracuse University Press.
- Farzanegan, M.R. (2013). Effects of International Financial and Energy Sanctions on Iran's Informal Economy. *SAIS Review*, Vol. 33, No. 1, p. 13-36
- Fanchi, J.R. (2005). *Energy in the 21st Century*. USA: World Scientific.
- Faucon, B. (17 September 2012). In Iran, the Wind Blows Free. Of Sanctions, That Is. *The Wall Street Journal*. Retrieved from <http://www.wsj.com/articles/SB10000872396390443659204577574972899961532>

- Gamal,R., Lawler, A. And Soldtkin, V. (29 September 2016). OPEC agrees modest oil output curbs in first deal since 2008. *Reuters*. Retrieved from <http://www.reuters.com/article/us-opec-meeting-idUSKCN11Y18K>
- Ghorban, N. (2015). Op-Ed: Iran's Oil And Gas Sector: The Post-Sanctions Opportunities. Retrieved from <https://mees.com/opec-history/2015/07/10/op-ed-irans-oil-and-gas-sector-the-post-sanctions-opportunities/>
- Gray, J. (24 July 1996). Foreign Investing in Libya or in Iran Face U.S. Sanctions. *The New York Times*. Retrieved from <http://www.nytimes.com/1996/07/24/world/foreigners-investing-in-libya-or-in-iran-face-us-sanctions.html>
- Gootman, E. (2006, December 24). Security Council Approves Sanctions Against Iran Over Nuclear Program. *The New York Times*. Retrieved from <http://www.nytimes.com/2006/12/24/world/24nations.html>
- Halliday, F. (2001). Iran and the Middle East: Foreign Policy and Domestic Change. *Middle East Report*. No.220. p. 42-27.
- Iqbal, Z. (2016). Iran's Post-Sanctions Economic Options. *Middle East Institute*. <http://www.mei.edu/content/irans-post-sanctions-economic-options>
- Jalilvand, D.R. (2013). *Iran's gas exports: can past failure become future success?* *Oxford Institute for Energy Studies*.
- Jalilvand, D.R. (2017). Iranian Energy: A Comeback with Hurdles. The Oxford Institute for Energy Studies. Retrieved from <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2017/01/Iranian-Energy-a-comeback-with-hurdles.pdf>
- Katzman, K. (2016). Iran Sanctions. *Congressional Research Service*
- Kimball, D.G. (2014). Focus: Assessing a Nuclear Deal with Iran. *Arms Control Association*, Vol.44, No. 6.
- Kinnader, E. (2010). Turkish-Iranian Gas Relationship: Politically Successful, Commercially Problematic. *Oxford Institute for Energy Studies*.
- Kissinger, H. (2014). *World Order*. USA: Penguin Press.
- Khaghani, M. (2016). IPC: New Opportunities for Upstream & Downstream in a Power Point presentation (Power Point slides).
- Khlebnikov, A. (17 June 2015). Can Iran really enter the European energy market and challenge Russia? *Middle East Monitor*. Retrieved from <https://www.middleeastmonitor.com/20150617-can-iran-really-enter-the-european-energy-market-and-challenge-russia/>

- Kuhn, M. (2012). *Enabling the Iranian Gas Export Options: The Destiny of Iranian Energy Relations in a Tripolar Struggle over Energy Security and Geopolitics*. Berlin: Springer.
- Laub, Z. (15 July 2015). International Sanctions on Iran. *Council on Foreign Relations*. Retrieved from <http://www.cfr.org/iran/international-sanctions-iran/p20258>
- Lew, J.J. (2015). Remarks of Treasury Secretary Jacob J. Lew to the Washington Institute. *The Washington Institute*. Retrieved from <http://www.washingtoninstitute.org/policy-analysis/view/remarks-of-treasury-secretary-jacob-j.-lew>
- Lewis, O. (3 April 2015). Netanyahu tells Obama Iran deal threatens Israel; to convene top ministers. Reuters. Retrieved from <http://www.reuters.com/article/us-israel-iran-framework-idUSKBN0MU0BR20150403>
- Maclean, W. (9 April 2015). Iran's Khamenei says neither rejects, accepts nuclear deal, details key. Reuters. Retrieved from <http://in.reuters.com/article/iran-nuclear-khamenei-idINKBN0N010220150409>
- Mahdavy, H. (1970). The patterns and problems of economic development in rentier states: The case of Iran. In M.A. Cook (Ed.), *Studies in the economic history of the Middle East: from the rise of Islam to the present day*. London: Oxford University Press. Retrieved from <http://www-personal.umich.edu/~twod/oil-s2010/rents/Mahdavy.pdf>
- Maloney, S. (2015). *Iran's Political Economy since the Revolution*. USA: Cambridge University Press.
- McMahon, R. (14 May 2004). Iran: IAEA Chief says no sign Tehran has weaponized uranium, but work remains. *Radio Free Europe Radio Liberty (RFE/RL)*. Retrieved from <http://www.rferl.org/content/article/1052796.html>
- McQuaile, M. (28 August 2015). How will Iran's nuclear deal affect oil markets? *Platts*. <http://www.platts.com/news-feature/2015/oil/middle-east-energy-focus/index>
- Metz, H. C. (1989). *Iran: A Country Study*. Washington, D.C.: U.S. Government Printing Office.
- Mohamedi, F. (2015). The Oil and Gas Industry. In R. Wright (Ed.), *The Iran Primer: Power, Politics, and US Policy* (Chapter 4, Economy) Retrieved from <http://iranprimer.usip.org/>
- Molavi, R. (2009). *Oil and Gas Privatisation in Iran*. UK: Ithaca Press.

- Nephew, R. (2015). Commentary on the Nuclear Deal between Iran and the P5+1. *The Center on Global Energy Policy at Columbia University's School of International and Public Affairs*.
- Nichols, M. (16 January 2016). U.N. lifts most Iran sanctions on receipt of IAEA nuclear report. Reuters. Retrieved from <http://www.reuters.com/article/us-iran-nuclear-un-idUSKCN0UU15V>
- Nyrop, R.F. (Eds.). (1978). *Iran: A Country Study*. Washington, D.C.: The American University.
- Özcan, N.A. and Özdamar, Ö. (2009). Iran's Nuclear Program and the Future of U.S.-Iranian Relations. *Middle East Policy*, Vol. 16, No. 1, p. 121-133.
- Painter, D. (1993). The United States, Great Britain and Mossadegh. Institute for the Study of Diplomacy. Retrieved from <https://americamiddleeast.files.wordpress.com/2012/09/the-us-and-mossadegh-1951-19531.pdf>
- Patterson, R. (2013). EU Sanctions on Iran: The European Political Context. *Middle East Policy Council*. No. 1. Retrieved from <http://www.mepc.org/journal/middle-east-policy-archives/eu-sanctions-iran-european-political-context?print>
- Perkovich, G. and Manzanero, S. (2004). Plan B: Using Sanctions to End Iran's Nuclear Program. *Arms Control Today*, Vol.34, No.4, p. 20-25.
- Recknagel, C. (15 May 2014). Iran Says Ready to Supply Natural Gas to Europe. Radio Free Europe Radio Liberty. Retrieved from <http://www.rferl.org/a/iran-says-ready-to-supply-natural-gas-to-europe-/25386226.html>
- Samore, G. (2015). *The Iran Nuclear Deal: A Definitive Guide*. USA: Belfer Center for Science and International Affairs.
- Shahri, N.N. (2010). The Petroleum Legal Framework of Iran: History, Trend and the Way Forward. *China and Eurasia Forum Quarterly*, Vol. 8, No. 1, p. 111-126.
- Sinha S. and Beachy, S. C. (2 April 2015). Timeline on Iran's Nuclear Program. *The New York Times*. Retrieved from http://www.nytimes.com/interactive/2014/11/20/world/middleeast/Iran-nuclear-timeline.html?_r=1#/#time243_10809
- Stern, R. (2007). The Iranian petroleum crisis and United States national security. *Proceeding of the National Academy of Science of the United States of America*, Vol.104, No.1, p.377.

- Strobel, W. (5 April 2015). Republicans push demand for for a vote on Iran nuclear deal. *Reuters*. Retrieved from <http://www.reuters.com/article/us-iran-nuclear-congress-idUSKBN0MW0QF20150406>
- Tagliapietra, S. (2014). Iran after the (Potential) Nuclear Deal: What's Next for the Country's Natural Gas Market?. *Fondazione Eni Enrico Mattei*.
- Tanchum, M. (2015). A Post-Sanctions Iran and the Eurasian Energy Architecture: Challenges and Opportunities for the Euro-Atlantic Community. *Atlantic Council*.
- Tarnopolsky, N. (9 April 2015). By condemning nuclear deal, Netanyahu prioritizes his own personal fortune. *Reuters*. Retrieved from <http://blogs.reuters.com/great-debate/2015/04/09/by-condemning-nuclear-deal-netanyahu-prioritizes-his-own-personal-fortune/>
- Torbati, Y. (13 April 2015). Deal or not, many U.S. states will keep sanctions grip on Iran. *Reuters*. Retrieved from <http://www.reuters.com/article/us-iran-nuclear-states-idUSKBN0N40CX20150413>
- Torbati, Y. (9 November 2016). Trump election puts Iran nuclear deal on shaky ground. *Reuters*. Retrieved from <http://www.reuters.com/article/us-usa-election-trump-iran-idUSKBN13427E>
- Torbati, Y. (3 February 2017). Trump administration tightens Iran sanctions, Tehran hits back. *Reuters*. Retrieved from <http://www.reuters.com/article/us-iran-usa-idUSKBN15H253>
- Vakhshouri, S. (2015). Iran's Energy Policy After the Nuclear Deal. *Atlantic Council Global Energy Center*.
- Wilber, D. (1953). Clandestine Service History: Overthrow of Premier Mossadeq of Iran, November 1952-August 1953. *CIA Historical Division*. Retrieved from <https://cryptome.org/iran-cia/cia-iran-pdf.htm>
- Yep, E. (2 April 2015). How Iranian Nuclear Deal Would Affect Oil Markets. *The Wall Street Journal*. Retrieved from <http://www.wsj.com/articles/how-iranian-nuclear-deal-would-affect-oil-markets-1428032400>
- Yergin, D. (1991). *The Prize: The Epic Quest for Oil, Money and Power*. New York: Simon & Schuster.
- Zengerle, P. (14 April 2015). In setback, Obama concedes Congress role on Iran deal. *Reuters*. Retrieved from <http://www.reuters.com/article/us-iran-nuclear-congress-idUSKBN0N50AJ20150414>
- Zengin, D. (4 October 2016). Iran braces for oil, gas investm. Via new contract model. *Anadolu Agency Energy News Terminal*. Retrieved from <http://aaenergyterminal.com/searchdetail.php?newsid=9623900>

- Zengin, D. (7 December 2016). Rising oil price to empower Iran's economic development. *Anadolu Agency Energy Terminal*. Retrieved from <http://aaenergyterminal.com/searchdetail.php?newsid=10280940>
- Zengin, D. (8 December). Shell and Iran sign preliminary oil and gas agreement. *Anadolu Agency Energy Terminal*. Retrieved from <http://aaenergyterminal.com/news.php?newsid=10292182>
- Zengin, D. (8 November 2016). Total and Iran sign deal for world's largest gas field. *Anadolu Agency Energy Terminal*. Retrieved from <http://aaenergyterminal.com/searchdetail.php?newsid=9975876>
- Council Regulations No 961/2010 on restrictive measures against Iran and repealing Regulations (EC) No 42372007. (25 October 2010). *European Union*.
- Factbox: Sanctions imposed on Iran (2 April 2015). Reuters. Retrieved from <http://www.reuters.com/article/us-iran-nuclear-sanctions-factbox-idUSKBN0MT02420150402>
- Factbox: Timeline of the Iranian Nuclear Crisis. (11 August 2005). *Radio Free Europe Radio Liberty (RFE/RL)*. Retrieved from <http://www.rferl.org/featuresarticle/2005/8/19C76894-2A3A-49D7-96A5-02039F66FD20.html>
- Germans sign power MoU with Iran. (18 December 2016). *Mehr News Agency*. Retrieved from <http://en.mehrnews.com/news/122073/Germans-sign-power-MoU-with-Iran>
- GOV72006/27, Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran (2006). International Atomic Energy Agency.
- Information Note: The European Union and Iran. (17 April 2015). European Union External Action. Retrieved from http://eeas.europa.eu/statements/docs/2013/131219_04_en.pdf
- Iran (19 June 2015). U.S. Energy Information Administration. Retrieved from <https://www.eia.gov/beta/international/analysis.cfm?iso=IRN>
- Iran Investment and Business Guide: Volume 1, Strategic and Practical Information. (2016) USA: International Business Publications.
- Iran remains defiant following UN vote. (25 December 2006). *Radio Free Europe Radio Liberty (RFE/RL)*. Retrieved from <http://www.rferl.org/content/article/1073668.html>
- Iran sees oil output up 1 mln bpd after curbs end (2 August 2015). *Reuters*. Retrieved from <http://www.reuters.com/article/iran-crude-idUSL5N10D01N20150802>

Iran 'will stick to nuclear plan'. (9 February 2005). *BBC News*. Retrieved from http://news.bbc.co.uk/2/hi/middle_east/4252019.stm

Iranian diplomat denies nuclear weapons program. (13 December 2002). *CNN*. Retrieved from <http://edition.cnn.com/2002/WORLD/meast/12/13/zarif.transcript/index.html>

Iran's Power Industry Analysis: Investment Risks & Opportunities in Post-Sanctions Era. (2015). *Energy Pioneers Ltd*.

Iran's LNG strategy. (8 June 2016). *The Oil & Gas Year*. Retrieved from <http://www.theoilandgasyear.com/interviews/irans-lng-strategy/>

Iran's New Oil Contract Model Receives Final Approval by Cabinet. (03 August 2016). *Tasnim News Agency*. Retrieved from <https://www.tasnimnews.com/en/news/2016/08/03/1148062/iran-s-new-oil-contract-model-receives-final-approval-by-cabinet>

Iran's oil export to Asia rises up more than 90 percent. (29 October). *IRNA*. Retrieved from <http://www8.irna.ir/en/News/82286028/>

Iran opens three new oilfields as it boosts output. (13 November 2016). *Reuters*. Retrieved <http://www.reuters.com/article/us-iran-oil-idUSKBN1380FJ>

Key Petroleum Sector Facilities (2004). *Iran Country Profile*. Retrieved from <http://www.lib.utexas.edu/maps/iran.html>

Nuclear Power in Iran (2016). *World Nuclear Association*. Retrieved from <http://www.world-nuclear.org/information-library/country-profiles/countries-g-n/iran.aspx>

OPEC 171st Meeting concludes (30 November 2016). *OPEC*. Retrieved from http://www.opec.org/opec_web/en/press_room/3912.htm

OPEC Basket Price. *OPEC*. Retrieved from http://www.opec.org/opec_web/en/data_graphs/40.htm

OPEC Monthly Oil Market Report (11 November 2016). *OPEC*.

The Iranian Opportunity: A Report Detailing Oil & Gas Sector Opportunities Available to International Companies in Iran. (2016). *Afraz Advisers*. UK: Afraz Advisers Ltd.

Zangeneh: Iran's oil output hits 3.8mbd. (14 June 2016). *ISNA*. Retrieved from <http://en.isna.ir/news/95031715238/Zangeneh-Iran-s-oil-output-hits-3-8mbd>

FEEMchannel. (12 February 2016). Mahmood Khaghani, Former Director General, National Iranian oil Company (NIOC). [Video File] Retrieved from <https://www.youtube.com/watch?v=qDEzfOxkE7w>

BP Statistical Review of World Energy June 2016.

Joint Comprehensive Plan of Action. (14 July 2015).

Renewable Energy in Iran (2016). Watson Farley & Williams

Resolution 1737 (2006). United Nations Security Council.

Resolution 1747 (2007). United Nations Security Council.

Resolution 1803 (2008). United Nations Security Council.

Resolution 1929 (2010). United Nations Security Council.

Security Council Imposes Sanctions on Iran for Failure to Halt Uranium Enrichment, Unanimously Adopting Resolution 1737 (2006). *United Nations*. Retrieved from <http://www.un.org/press/en/2006/sc8928.doc.htm>

Timeline of Nuclear Diplomacy with Iran. (18 September 2015). *Arms Control Association*. Retrieved from <https://www.armscontrol.org/factsheet/Timeline-of-Nuclear-Diplomacy-With-Iran>

Energy Information Administration <https://www.eia.gov/>

The World Bank <https://worldbank.org/>

APPENDICES

A. TURKISH SUMMARY

1. Tezin amacı ve araştırma konusu

İran, dünya petrol üretiminde ilk 10 ve doğal gaz üretiminde ilk 5 ülke arasında yer almasına rağmen zengin hidrokarbon kaynaklarını ülkeye uygulanan yaptırımlar nedeniyle kullanamamakta ve ülke ekonomisi bu kaynaklardan tam anlamıyla yararlanamamaktadır. Dolayısıyla İran, zengin enerji kaynaklarına rağmen nükleer yaptırımlar nedeniyle gelişmiş bir enerji endüstrisine sahip olamamıştır. İran ile Birleşmiş Milletler'in 5 daimi üyesi ABD, İngiltere, Fransa, Rusya ve Çin'in yanı sıra Almanya'nın da aralarında bulunduğu P5+1 ülkeleri arasında 14 Temmuz 2015'de imzalanan nükleer anlaşmayla ülkenin enerji sektörünün gelişimine ilişkin umutlar canlanmış ve bu doğrultuda enerji sektörlerinde yeni atılımlar hedeflenmiştir. Bu bağlamda bu tez, nükleer anlaşmanın İran enerji piyasasına olan etkisini ve yaptırımların kaldırılmasının ülkenin enerji sektörleri üzerindeki etkisini analiz etmektedir.

Tez, ilk olarak, İran enerji endüstrisi ve politikasının gelişimini daha iyi anlayabilmek için petrol, doğal gaz ve nükleer enerji sektörlerinin kısa tarihçesi ve söz konusu alanlardaki öne çıkan gelişmeleri incelemektedir. Tarihsel gelişimin ele alındığı bölümün ardından, P5+1 ülkeleri tarafından nükleer yaptırımların uygulandığı dönemde ülkenin enerji sektörünün durumu ve enerji politikası analiz edilmektedir. İlerleyen bölümde, İran ve P5+1 ülkeleri arasında yapılan müzakereler ve İran'ın temel finansman kaynağı olarak görülen enerji sektörüne uygulanan yaptırımların kademeli olarak kaldırılmasını öngören Ortak Kapsamlı Eylem Planı irdelenmektedir. Tezin son bölümünde ise nükleer anlaşma ve yaptırımların kademeli olarak kaldırılmasının İran enerji sektörüne olan etkisi incelenmektedir.

Tez, "Nükleer anlaşma ve yaptırımların kademeli olarak kaldırılmasının İran enerji sektörüne etkisi nasıl olmuştur?" sorusuna yanıt aramaktadır. Bu soru, İran enerji piyasasının gelişimini ve nükleer anlaşmadan sonra ülkenin enerji politikasının nasıl

yönlendiğini görebilmek açısından önemlidir. Söz konusu soru, nükleer anlaşmanın ülke enerji sektöründe bir başarı yakalanıp yakalanmadığını irdeleyebilmek açısından da önem taşımaktadır. İran ve P5+1 ülkeleri arasında imzalanan anlaşma, İran enerji sektörünün gelişimi için umut uyandırırken, bu araştırma konusu anlaşmanın hangi ölçüde başarılı olduğunu ve İran enerji sektörünün gelişmesine nasıl bir yol oluşturduğunun anlaşılmasını sağlamaktadır.

2. Literatür taraması

Enerji alanı, İran ekonomisinin ayrılmaz bir parçası olmasının yanı sıra ülkenin dış politikasının da önemli unsurlarından biridir. Petrol ve doğal gaz sektörleri ülke ekonomisinde önemli bir oynadığı için İran'a uygulanan yaptırımlar, ülkenin başlıca enerji pazarını hedef alıyordu. Bu nedenle, İran enerji politikasıyla ilgili literatür, daha çok ülkenin dış politikasıyla birlikte ele alınmaktadır. Öte yandan, enerji konusu ülkelerin güvenlik meselesinin bir parçası olarak değerlendirildiğinden konuya ilişkin İran tarafından yayınlanmış açık ve net kaynak bulmak güçtür. Ayrıca, İran enerji piyasası ve politikasına ilişkin literatür ağırlıklı olarak Batılı ya da ülke dışında yaşayan İranlı akademisyenler tarafından çalışılmıştır.

İran, zengin doğal kaynaklara sahip bir bölgede konumlandığı için tarih boyunca Batılı ülkelerin ilgisinin yoğun olduğu bir ülke olmuştur. Bu doğrultuda, İran enerji sektörleri ağırlıklı olarak Birleşik Krallık, ABD ve Rusya'nın katkılarıyla gelişmiştir. İran'daki ilk petrol arama ve çıkarma faaliyetleri İngilizler tarafından gerçekleştirilirken, ülkenin doğal gaz endüstrisi Ruslar, nükleer programı ise ABD tarafından geliştirilmiştir. Pehlevi döneminin sonuna kadar, ülkenin doğal kaynakları İran ekonomisinin en önemli gelir kapısı olmuştur. Bu nedenle Mahdavy, Pehlevi dönemi İran'ın petrol gelirlerinin İran ekonomisinin ana bileşenlerinden bir olmasından dolayı rantiyeli devlet olarak tanımlar. Söz konusu dönemde, İran enerji politikası, temel olarak petrol etrafında gelişir ve dolayısıyla enerjide önde gelen sektör petrol olur. 1979 yılında ülkede gerçekleşen İslam Devrimi, sadece İran'ın siyasal rejimini değiştirmekle kalmaz aynı zamanda enerji alanında da yeni bir dönemi başlatır.

İran İslam Devriminden sonra, yeni yönetimin batılı ülkelere karşı tutumu ülkenin enerji politikasını da etkiler ve İran enerji endüstrisindeki yabancı egemenliği rejiminin Batı karşıtı İslamcı ve milliyetçi politikalarıyla kırılır. Devrimden hemen sonra Amerika ile yaşanan rehine krizi ve sonrasında uygulanan yaptırımlar, öte yandan İran-İrak Savaşı ülkenin enerji piyasasında üretim ve ihracat faaliyetlerinin azalmasına neden olur. Maloney, İslam Devrimi sonraki dönemde İran'ın siyasal ekonomisini incelediği kitabında, ülkenin petrol üretiminin Pehlevi dönemindeki üretim seviyelerine ulaşamadığını ve İran enerji piyasasının hükümet politikası, yaptırımlar ve politik risklerden dolayı zarar gördüğünü ifade etmekte. Bu nedenle, Batılı ülkelerin İran'a uyguladığı yaptırımların İran'ın enerji piyasasının gelişimini önemli ölçüde engellemiştir. Katzman'a göre, Birleşmiş Milletler Güvenlik Konseyi'nin nükleer programından dolayı İran'a yönelik uyguladığı yaptırımlar, ülkenin nükleer faaliyetlerine katkı sunduğu düşüncesiyle enerji sektörünü hedef almıştır. Katzman çalışmasında, enerji kaynaklarından elde edilen gelirin 2005 yılı öncesi İran'ın gayri safi milli hasılasının yüzde 20'sini oluşturduğunu belirtirken bu rakamın son on yılda yaptırımlar nedeniyle azaldığını ortaya koymuştur. Farzanegan da benzer şekilde yaptırımların ülkenin ekonomisinde önemli bir paya sahip petrol gelirlerini hedef aldığını ifade etmiştir. Söz konusu çalışmalar, İran'ın enerji gelirlerini, dolayısıyla ekonomisinin gelişmesini önleme amacıyla uygulandığını göstermiştir.

İran ve P5+1 ülkeleri arasında gerçekleşen nükleer müzakereler sadece İran için değil aynı zamanda dünya siyasi için de tarihi bir süreç olmuştur. Kimball'a göre, P5+1 ülkeleri anlaşmayla uluslararası toplumun rolünü arttırarak İran'ın nükleer silah geliştirmesinin önüne geçmeyi hedeflemişlerdir. Kimball, anlaşmayı teknik bir bakış açısıyla analiz ederken Kissenger, söz konusu müzakereleri uluslararası düzene ilişkin bir sorun olarak tanımlar. Kissenger, İran ve P5+1 ülkeleri arasındaki müzakerelerin uluslararası toplumun taleplerini uygulama kapasitesi, nükleer silahların yayılmasını önleme politikasının geçirgenliği ve dünyanın en çalkantılı bölgesinde nükleer silahlanma yarışının görünümüne ilişkin olduğunu ifade eder. Dolayısıyla Kissenger, Batının İran ile 10 yılı aşkın süredir yürüttüğü görüşmeleri

İran'ı bir nükleer güç olmasını engelleme ve var olan düzenin korunması olarak yorumlar.

İran ve P5+1 ülkeleri, uzun süren müzakereler sonucunda nükleer anlaşmanın şartlarını içeren ve İran'a uygulanan yaptırımların kaldırılması için bir yol haritası niteliğindeki Ortak Kapsamlı Eylem Planını imzalayarak önemli bir gelişme kaydeder. Nephew, Batı'nın İran'ın nükleer silah elde edemeyeceği konusunda bir güvence vermesinden dolayı Ortak Kapsamlı Eylem Planını statükoya karşı bir gelişme olarak tanımlar. Öte yandan Samore, nükleer anlaşmanın savunucuları ve karşıtlarının argümanlarını inceleyerek Ortak Kapsamlı Eylem Planını analiz eder. Samore'un analizine göre, muhalifler anlaşmanın İran'ın nükleer faaliyetlerini meşrulaştıracağını iddia ederken, taraftarlar ise söz konusu anlaşmanın ekonomik entegrasyonla herhangi bir askeri tehdit veya çatışma riskini azaltabileceğini düşünmektedir. Ancak Samore, Ortak Kapsamlı Eylem Planının uzun vadeli getirileri hakkında bir öngöründe bulunmanın İran'ın nükleer güç olma hırsından dolayı zor olduğunu da belirtmektedir.

Nükleer anlaşmaya varılması ve Ortak Kapsamlı Eylem Planının uygulanmaya başlanmasıyla birlikte İran'a uygulanan yaptırımlar kademeli olarak kaldırılmıştır. Anlaşmanın ardından İran hem uluslararası enerji şirketleriyle görüşme sürecine hem de ülkenin enerji piyasasına yönelik reformlar üzerinde çalışmaya başlamıştır. Vakhshouri, İran'ın enerji kaynaklarını transit noktalar aracılığıyla küresel pazara, özellikle Avrupa pazarına ulaştırabilmek için Türkiye, Irak ve diğer Körfez ülkelerine petrol, doğal gaz ve elektrik ihracatını arttırmaya önem verdiğini ifade etmektedir. Bu nedenle ülke enerji işbirliğinin artırılması için uluslararası enerji şirketleriyle bu dönemde görüşmelerini yoğunlaştırmıştır. Tüm bu yoğun görüşme trafiği ve imzalanan ön anlaşmalara rağmen devletler arası herhangi bir resmi enerji projesi gerçekleşmemiştir.

Nükleer anlaşmanın ardından, İran enerji piyasasının geleceğine dair olumlu bir görüş etkin olmuş ve anlaşma yaptırımların kaldırılmasıyla enerji sektörlerinin gelişmesine katkı sunacağı böylelikle ülkenin enerjideki gücünü yeniden kazanmasına yol açacağı düşüncesiyle umutla karşılanmıştır. Örneğin, Mohamedi

İran'ın petrol ve doğal gaz sektörlerinin yabancı şirketlerin yatırımlarıyla yeniden canlanacağını öngörmüştür. Ayrıca Ghorban da İran'ın yaptırımların kaldırılmasıyla petrol piyasasındaki gücünü yeniden kazanacağını belirtmiştir. Ghorban'a göre, İran enerji kaynaklarının müşterileri yaptırımlar nedeniyle diğer kaynakları İran'ın kaynaklarına tercih etmek zorunda kalmışlar ve yaptırımların kaldırılması onları eski kaynaklarına geri döndürecektir. Damianova ise çalışmasında İran'ın petrol piyasasındaki gücünü kısa sürede kazanabileceğini ancak doğal gaz piyasasında bunun biraz daha zaman alabileceğini dile getirmiştir. Öte yandan Tanchum, anlaşmanın İran enerji endüstrisi üzerindeki etkisini daha geniş bir çerçeveden yorumlamıştır. Tanchum, yaptırımların kaldırılmasının sadece İran enerji piyasasına değil aynı zamanda olası boru hattı projeleriyle Avrasya enerji jeopolitiğini de yeniden şekillendirebileceğini ifade etmiştir. Dolayısıyla nükleer anlaşma İran'ın yerel enerji piyasası için olduğu kadar ülkenin küresel enerji piyasalarındaki yerine ilişkin de umutlar doğurmuştur.

Nükleer anlaşma ve yaptırımların kaldırılmasının olumlu etkileri olduğuna ve olacağına inanların aksine, kimi akademisyenler ve uzmanlar da söz konusu anlaşmanın İran enerji endüstrisi üzerinde sınırlı etkisi olduğunu savunmaktadır. Nükleer anlaşmanın İran enerji sektöründe sınırlı etkisi olduğunu belirtenler bu durumu İran'a yönelik uygulanan yaptırımların henüz tamamen kaldırılmasına, düşük petrol fiyatlarına, İran enerji politikası ve piyasasının kompleks ve kapalı yapısına ve anlaşmanın bozulma riskinin olmasına bağlamışlardır. Örneğin Igbal, ülkenin petrol üretimini arttırma kapasitesine kavuşmasına rağmen, düşük petrol fiyatlarının İran'ın gelirlerini ve ekonomisini negatif yönlü etkilediğini ifade etmiştir. Jalilvand ise nükleer anlaşma sonrasında yaşanan gelişme ve ilerlemeyi ılımlı olarak tanımlamış ve anlaşmanın uluslararası işbirliklerine kapı açarak İran'ın küresel enerji piyasasına dönmesine olanak sağladığını belirtmiştir. Jalilvand, anlaşmanın uluslararası pek çok yatırımcıyı İran'a çekmesine rağmen ülkenin enerji sektöründe bir başarıya neden olmadığını ancak somut sonucunun ilerleyen süreçte ortaya çıkacağına dikkati çekmiştir. Jalilvand'e göre, İran'ın karışık siyasi yapısı, ülkenin enerji görünümünün gelişmesi önündeki engellerden olmuştur. Ayrıca Jalilvand, Donald Trump'ın Amerika'nın yönetimine gelmesiyle anlaşmanın geleceğine ilişkin

belirsizliğin arttığını kaydetmiştir. Bu nedenle, siyasal ve ekonomik belirsizlikler İran'ın enerji endüstrisinin gelişimini ve küresel enerji piyasasına entegrasyonunu sınırlı kılmıştır.

3. Tezin bulgusu

Nükleer anlaşmayla İran'ın enerji piyasasındaki gücünü yeniden kazanacağını savunanların aksine bu tez, söz konusu anlaşma ve bu kapsamdaki yaptırımların kademeli olarak kaldırılmasının ülkenin enerji sektörü üzerindeki etkisinin sınırlı olduğunu savunuyor. İran ve P5+1 ülkeleri arasındaki yapılan nükleer anlaşma, İran enerji endüstrisinin gelişimi ve ülkenin küresel enerji piyasasına entegrasyonu ile ilgili beklenti ve umutları arttırmıştır. İran'ın nükleer anlaşma ve yaptırımların hafifletilmesiyle enerji piyasasında güç kazanması beklenmekteydi. Yaptırımların kademeli olarak kaldırılması, İran'ın petrol ve doğal gaz sektörlerini yabancı yatırımlar aracılığıyla yeniden canlandırmasını sağlayabilirdi. Bu tezde tartışılan literatür doğrultusunda, devam eden yaptırımlar, düşük petrol fiyatları, İran enerji piyasasının karmaşık ve kapalı yapısı ve anlaşmanın bozulma riski gibi siyasal ve ekonomik engeller, nükleer anlaşmanın yapıldığı tarihten bu yana geçen zamanda İran enerji sektöründeki beklenen gelişimini engellemiştir. Dolayısıyla, nükleer anlaşma ve yaptırımların kademeli olarak kaldırılmasının İran enerji endüstrisi üzerinde kısıtlı bir etkisi olmuştur, ancak anlaşmanın İran enerji sektöründe yaratacağı sonuçlar uzun vadede, şartlar olgunlaştığında gözlemlenecektir.

4. Tezin Bölümleri

Bu tez, giriş ve sonuç olmak üzere altı bölümden oluşmaktadır. Tezin amacı, literatür taraması ve yapısına ilişkin bilgilerin yer aldığı girişten sonra gelen bölüm, İran enerji sektörlerinin başlangıcı ve gelişiminin tarihsel bir özetini sunmaktadır. Bu bölüm İran enerji sektörü ve politikasının, ülkede uygulana iki rejim döneminde gelişimini anlayabilmek adına önemlidir. Şah döneminde, İran'ın enerji sektörleri temel olarak yabancılar tarafından şekillenmiş ve en parlak zamanlarını yaşamıştır. İslam Devrimi ile yeni bir dönem başlamış ve enerji sektörünün millileştirilmesi süreci başlamıştır. Yeni rejimin Batı karşıtı politikaları, İran enerji sektörünü

yabancı hakimiyetinden çıkarmıştır. İran'ın nükleer faaliyetlerinin gündeme geldiği 2000'li yıllarda, Batı'nın yeni rejime yönelik şüpheciliği daha da güçlenmiş ve İran'a yönelik uygulanan yaptırımlar süreci başlamıştır.

Tezin üçüncü bölümde, Batı'nın İran enerji sektörüne yönelik uyguladığı yaptırımların etkisi incelenmektedir. ABD, BM ve AB tarafından dayatılan yaptırımlar, İran'ın enerji sektörüne, özellikle petrol ve doğal gaz sektöründe, üretim ve ürünlerin ticaretini engellemesinden dolayı ciddi etkilere neden olmuştur. Bu dönemde İran, ne enerji kaynaklarını ihraç edebilmiş ne de enerji sektöründeki gerekli altyapı için ihtiyaç duyulan teknolojiyi ithal edebilmiştir. Bu nedenle, İran bu süreçte ülkenin zengin enerji kaynaklarından faydalanamamış ve bu kaynakların taşıdığı avantajları yaşayamamıştır. Bu dönemde İran enerji alanındaki ticari faaliyetlerini genellikle Asya ülkeleriyle gerçekleştirse de ülke küresel enerji piyasasından uzak kalmış ve ülke ekonomisi yaptırımların yarattığı baskıyla zarar görmüştür.

Dördüncü bölümde, İran ve BM Güvenlik Konseyi'nin beş daimi üyesi olan ABD, İngiltere, Fransa, Rusya ve Çin ile Almanya arasındaki nükleer müzakereler incelenmiş ve 14 Temmuz 2015'te imzalanan Ortak Kapsamlı Eylem Planı analiz edilmiştir. Bu bölüm, anlaşma ve Ortak Kapsamlı Eylem Planının şartlarını görebilmek ve bunların İran enerji sektörüne nasıl bir etkisinin olabileceğinin, neleri öngördüklerini belirleyebilmek adına önemlidir. Anlaşmanın sonucunda, Uluslararası Atom Enerjisi Kurumu İran'ın nükleer faaliyetlerinin şartlarla uyum sağladığını ve yaptırımların kaldırılabilirliğini kabul etmiştir. Ortak Kapsamlı Eylem Planı, anlaşmanın tam olarak uygulanmasıyla, İran'ın nükleer enerji programını barışçıl amaçlar için sürdürebileceğini öngörmüştür. Hakkındaki fikir ayrılıklarına rağmen söz konusu plan, İran'a küresel enerji piyasasıyla bütünleşme şansı vermiştir.

Tezin beşinci bölümü ise yaptırımların kademeli olarak kaldırılmasının İran enerji piyasasına yansımalarını analiz etmektedir. Anlaşması sonrası dönemde İran petrol, doğal gaz ve elektrik sektörleriyle ilgili yeni politikalar, işbirlikleri ve yatırım planları bu bölüm altında incelenmektedir. Nükleer anlaşmanın sadece uluslararası politika değil aynı zamanda İran'ın enerji politikası ve küresel enerji piyasası için de

ayrı bir önem taşıdığı görülmektedir. Yaptırımların kademeli olarak kaldırılması, ülkenin enerji sektörüne yeni yabancı yatırımların da desteğiyle modernleşmesi ve gelişmesi için bir fırsat sağlamıştır. İran bu dönemde enerji alanındaki gücünü yeniden kazanmak için çalışmalara başlasa da hukuksal düzenlemeler ve bankacılık sistemindeki sorunlar gibi ülkedeki altyapı eksiklikleri İran'ın enerji sektörünün hızlıca gelişmesine engel olmuştur. Anlaşma, İran'ı enerji konusunda daha dışa dönük bir politika izlemeye yöneltmiş ancak ülkenin enerji endüstrisinin gelişiminde sınırlı bir etkisini olmuştur. Sonuç bölümünde ise tezin bulguları özetlenmiştir.

5. Sonuç

Bu tez, 2015'te imzalanan nükleer anlaşmadan önce ve sonra İran enerji sektörünün gelişimini ve ülkenin enerji politikasını incelemiştir. Tezin temel amacı anlaşma ve yaptırımların hafifletilmesinin ülkenin enerji sektörü üzerindeki etkisini gözlemlemektir. İlk olarak tez, ülkenin gördüğü iki siyasal rejimin politikaları ışığında, İran enerji sektörünün gelişimini anlayabilmek için 1908'den 2006'ya kadar ülkedeki enerji kaynaklarının tarihini ve gelişimini özetlemektedir. Bu doğrultuda tez, İran enerji sektörünün ve politikasının Pehlevi döneminin sonuna kadar Batılıların hakimiyetinde olduğunu göstermektedir. Ülkenin sadece petrol ve gaz endüstrisi değil, aynı zamanda nükleer programı da yabancı ülkelerin yardımıyla başlatılmış ve şekillenmiştir. Bu nedenle İran, zengin enerji kaynaklarına sahip olmasına rağmen, bu kaynakların yönetiminde söz sahibi olamamış ve bu kaynakların kazancından yeterince yararlanamamıştır. Ülkenin enerji sektörü, Pehlevi döneminde parlayan bir süreç yaşasa da tamamen yabancı güçlere bağımlıydı. Pehlevi döneminde petrol endüstrisini kamulaştırma girişimlerine rağmen, 1979 İran Devrimi'ne kadar olan sürede ülkenin enerji sektöründeki yabancı egemenliği hakimiyetini sürdürmüştü. Ülkenin yeni rejimi, İran'ın Pehlevi dönemi boyunca izlediği enerji politikası tersine çevirmiş ve yabancıları enerji endüstrisinden uzak tutarak, bu sektörü millileştirmiştir. Yeni rejimin Batı karşıtı politikaları, İran enerji sektöründe Batı hakimiyetini sona erdirmiştir. Devrimin hemen ardından yaşanan İran-İrak savaşı ve Batılı ülkelerle tansiyonun iyice yükselmesi, ülkenin enerji sektörünün gelişmesinin önünde önemli bir engel teşkil

etmiştir. Artan enerji talebine rağmen arz, enerji sektörü altyapı eksiklikleri, eskiyen rafineriler, yaptırımlar ve ekonomik kısıtlamalar nedeniyle geliştirilememiştir. Ayrıca, İran'ın nükleer programı Batı tarafından kuşkuyla karşılanmış ve taraflar arasındaki nükleer kriz 2000'li yılların başında İran'ın nükleer faaliyetleriyle ilgili belgelerin ortaya çıkmasıyla başlamıştır. Uluslararası Atom Enerjisi Kurumunun soruşturmaları, İran'ın nükleer silah üretimi hakkındaki iddialara ilişkin somut bulgulara ulaşmasa da, o dönemki hükümetin uzlaşmacı olmayan yaklaşımı, nükleer yaptırımlarla sonuçlanmıştır. Bu nedenle, nükleer kriz sonucu uygulanan yaptırımlar, İran'ın enerji piyasası için yeni yükler getirmiştir.

İkincisi bu tez, ABD, AB ve BM tarafından İran'a yönelik uygulanan ve İran'ın petrol, doğal gaz ve nükleer enerji sektörlerine olan etkilerini inceledi. İran, İslam devriminden bu zamana yaptırımlara maruz kalmış ancak bu yaptırımların hedefi farklılık göstermiştir. İran'ın nükleer faaliyetlerinden duyulan kaygıyla uygulanan yaptırımlar ülkenin nükleer programını hedeflerken, 1979 İslam Devriminden hemen sonra uygulanan ilk yaptırımlar ülkenin teröre desteğini engellemek amaçlı olmuştur. Nükleer kriz nedeniyle İran'a uygulanan yaptırımlar, Avrupa Birliği ve Birleşmiş Milletler yaptırımları olmak üzere ikiye ayrılmıştır. Avrupa Birliği'nin uyguladığı yaptırımlar, sadece Avrupa Birliği ülkelerinin İran ile olan ekonomik faaliyetlerini engellese de, Birleşmiş Milletlerin uyguladığı yaptırımları büyük ölçekte bağlayıcı olduğu için ülke ekonomisi üzerinde daha büyük etkiye sahip olmuştur. İran enerji endüstrisi, kaynakların geliştirilmesinde gerekli olan mal ve teknolojilerin transferinin yasaklanması nedeniyle yaptırımlardan büyük ölçüde etkilenmişti. Yaptırımlar, esas olarak İran'ın enerji sektörünü ülkenin nükleer faaliyetine maddi katkı da sunduğu düşüncesiyle hedef almıştır. Ülkenin enerji kaynaklarından elde edilen gelirler, yaptırımlar öncesinde İran'ın gayrisafi milli hasılasında büyük bir orana sahipken, yaptırımların uygulanmasıyla bu oran yıllar içerisinde azalmıştır. Yaptırımlar İran enerji sektörlerinin gelişmesini engelleyerek, ülkenin zengin kaynaklarını tam kapasitede kullanamaması nedeniyle küresel enerji piyasasında gücünü yitirmesine sebep olmuştur. Ülkenin petrol ve doğal gaz sektörleri gelişmese de İran enerji ticaretini Asya ülkeleriyle kısıtlı seviyede sürdürmeye

devam etmiştir. Ancak İran'ın sınırlı enerji ticareti ülkeyi küresel enerji piyasasından izole etmiştir.

Üçüncüsü, İran ve P5+1 ülkeleri arasında müzakere süreci ve Ortak Kapsamlı Eylem Planı da bu tezde incelenen konu başlıkları arasındadır. Ortak Kapsamlı Eylem Planı, İran ile yaşanan nükleer krizin çözümü için bir yol haritası sunmuştur. Plan, İran ve Batı arasındaki anlaşmazlık için bir çözüm sunarken, ülkenin ekonomik izolasyonunun sona ermesi için de önemli bir adım olmuştur. Ortak Kapsamlı Eylem Planı çerçevesinde, İran'ın nükleer araştırma ve geliştirme faaliyetleri kontrol altında olmak şartıyla sürdürmesine izin verilmiştir. Söz konusu anlaşma Batı'ya İran'ın nükleer silah geliştirmeyeceğine dair güvence olmuştur. Anlaşmayla, Uluslararası Atom Enerjisi Kurumu, İran'ın nükleer faaliyetlerinde yol haritasında belirtilen şartlarla uyum sağladığını onaylamış ve yaptırımlar kademeli olarak kaldırılmaya başlanmıştır. Ortak Kapsamlı Eylem Planı'nın İran ve uluslararası camiada hem destekçileri hem de karşı çıkanları olmuştur. Nükleer anlaşma yanlıları, söz konusu anlaşmanın İran'ın nükleer faaliyetlerini sınırlayarak uluslararası barışı güçlendireceğini belirtirken, anlaşmanın karşıtları bu durumun İran'ın elini güçlendirerek bölgedeki çatışma riskini arttıracaklarını savunmuştur. Öte yandan, İran'daki anlaşma taraftarları söz konusu anlaşmanın ülkeye küresel ekonomik sistemle yeniden bütünleşme imkânı verdiğini ve ülkedeki refahı arttıracaklarını ifade ederken muhalifler, Batı ile yapılan anlaşmanın rejimin temelini baltalayacağından endişe duymuşlardır. Bununla birlikte nükleer anlaşma, ülkenin siyasal ve ekonomik izolasyonuna son vereceği ve yaptırımların kaldırılmasının İran'ın enerji sektörünü yeniden canlandıracağı düşüncesiyle İran için bir dönüm noktası olmuştur.

Son olarak bu tez, nükleer anlaşmayla yaptırımların kaldırılmasının İran enerji sektörüne olan etkisini de analiz etmiştir. Tezin son kısmında, nükleer anlaşma sonrası İran'ın petrol, doğal gaz ve elektrik sektöründeki yeni işbirliği ve yatırım planları değerlendirilmiştir. Yaptırımların hafifletilmesi, ülkenin yabancılarla iş birliği ve yeni yatırımlar yapmasının yolunu açarak enerji endüstrisinin geliştirilmesi ve modernleşmesi için bir fırsat sağlamıştır. Nükleer anlaşmanın ardından İngiltere, Fransa, Almanya, İtalya ve Japonya'nın da aralarında bulunduğu yabancı

delegasyonlar, İran ile petrol, doğal gaz ve elektrik sektöründeki yeni işbirlikleri için ülkeye ziyaretler düzenlemişlerdir. İran, yaptırımların kaldırılmasıyla birlikte enerji piyasasındaki Pazar payını arttırabilmek için enerji sektörlerini yeniden canlandırmayı hedeflemiştir. Bu bağlamda, İran ilk olarak uluslararası petrol ve gaz şirketlerine daha esnek ortam sağlayabilmek ve yeni yatırımları ülkeye çekebilmek adına petrol sözleşmesini yeniden düzenlemiştir. Aynı zamanda, ülkeye yeni yatırımları çekmek, teknoloji transferi yapmak ve ihracat fırsatlarını genişletmek için pek çok ülke ve uluslararası petrol ve doğal gaz şirketiyle enerji diplomasisi yapılaş, görüşmeler gerçekleştirilmiştir. Bu dönemde İran kaynak çeşitliliğine de önem vermiş ve petrol, doğal gaz gibi geleneksel kaynaklara alternatif olarak yenilenebilir enerji yatırımlarına da odaklanmıştır. Bu doğrultuda ülke, uluslararası şirketlerin deneyim ve teknolojilerinden yararlanmak için işbirlikleri yapmıştır. İran'ın enerji sektörünü geliştirme ve küresel enerji piyasasında yeniden gücünü yakalama girişimlerinde bulunsa da ülkenin hukuk ve bankacılık sistemlerindeki sorunlar gibi çeşitli nedenlerle ülkedeki altyapı eksikliği ülkenin enerji endüstrisinin istenilen düzeyde gelişmesine engel olmuştur.

Sonuçta bu tez, İran ile P5+1 ülkeleri arasındaki nükleer anlaşma ve yaptırımın kademeli olarak kaldırılmasının, bazı yaptırımların hale devam etmesi, petrol fiyatlarının düşük olması, İran enerji piyasasının kapalı ve karmaşık bir yapıya sahip olması ve özellikle Amerika'da nükleer anlaşma muhalifi Donald Trump'ın yönetime gelmesiyle anlaşmanın bozulma riskinin artması gibi nedenlerden dolayı İran enerji sektörünün gelişiminde sınırlı etkisi olduğunu ortaya koymuştur. Anlaşma, İran'ın enerjide daha dışa dönük bir politika izlemesine yol açmış, nükleer anlaşmanın sonrasında ülke, özellikle hidrokarbon endüstrisi olmak üzere enerji sektörünü canlandırmak için harekete geçmiştir. Ancak, siyasi belirsizlikler ve ekonomik engeller nedeniyle İran enerji piyasasında beklenen gelişme sağlanamamıştır. Nükleer anlaşma ve yaptırımların kademeli olarak kaldırılmasının somut sonuçları, İran için şartlar tamamen olgunlaştığında, uzun vadede gözlemlenecektir.

TEZ FOTOKOPİSİ İZİN FORMU

ENSTİTÜ

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YAZARIN

Soyadı : Zengin
Adı : Dilara
Bölümü : Orta Doğu Araştırmaları

TEZİN ADI (İngilizce) : EVOLUTION OF IRANIAN ENERGY SECTOR BEFORE AND AFTER THE NUCLEAR DEAL OF 2015

TEZİN TÜRÜ : Yüksek Lisans Doktora

1. Tezimin tamamından kaynak gösterilmek şartıyla fotokopi alınabilir.
2. Tezimin içindekiler sayfası, özet, indeks sayfalarından ve/veya bir bölümünden kaynak gösterilmek şartıyla fotokopi alınabilir.
3. Tezimden bir (1) yıl süreyle fotokopi alınmaz.

TEZİN KÜTÜPHANEYE TESLİM TARİHİ: