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Kurdistan is a semi-autonomous region of Iraq with proven reserves of 200 trillion cubic feet (5.7 trillion cubic meters) of natural gas and 45 million barrels of oil. While oil is currently being exported to world markets from Iraqi Kurdistan, providing the region with an important source of revenue, natural gas will likely be a key source of Kurdistan's revenues in the future. It remains an open question whether that wealth will be used to promote social and economic development and good governance or whether it will become a curse that affects the region's well-being. This research examines the internal and external dimensions of Kurdistan Regional Government's (KRG) natural resource geography. Internally, KRG has policies in place to develop its natural resources; therefore, this study analyzes the Kurdistan energy policy on natural gas, and the obstacles the KRG faces such as the deal and sharing of petroleum revenue which has caused issues between Kurdistan and Baghdad governments. Externally, the research examines energy relations between Kurdistan and powerful neighbors such as Turkey and Iran and also with actors in Europe that are keen to bring Kurdish gas supplies to market. Geopolitically, this research tests how Kurdistan's location and contingent sovereignty affects its ability to develop its resource base.

The dissertation employs a case study method. The analysis is based primarily on interviews with key actors in Kurdistan, including politicians from different political parties, members of Kurdistan's parliament, Natural Resource Commission members, and representatives of international energy companies active in Kurdistan. The project also

includes analysis of official statements of the political opposition's parties, publically available data, and news reports.

KEYWORDS: Kurdistan Region, Iraq, Natural Gas Policy, Geopolitics, PUK, PDK, Russia, Turkey, Iran Azerbaijan, Energy Security

THE GEOPOLITICAL CHALLENGE OF IRAQI - KURDISTAN'S NATURAL GAS

by

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TABLE OF CONTENTS

	Page
LIST OF TABLES	v
LIST OF FIGURES	vi
CHAPTER	
I. OVERVIEW	1
1.1 Introduction.....	1
1.2 The Kurdistan Region.....	5
1.3 Kurds.....	10
II. LITERATURE REVIEW	12
2.1 Introduction.....	12
2.2 Resource Competition between KRG and Baghdad.....	12
2.3 Ethnic Tensions, Resources, and Sovereignty	13
2.4 Kurdistan Region Government Natural Gas Policy.....	14
2.5 Methodological Approach	21
2.6 Positionality and Subjectivity	23
2.7 Data Collection Sources.....	25
2.7.1 Interviews.....	26
2.7.2 Primary Source Documents	27
2.7.3 Data Analysis.....	29
2.7.4 Aims and Objectives	29
III. NATURAL GAS POLICY OF KURDISTAN.....	31
3.1 Introduction.....	31
3.2 KRG Natural Gas Policy.....	34
3.3 Natural Gas Infrastructure of Kurdistan	40
3.3.1 Electric Generation from Natural Gas	44
3.3.2 Subsidies	46
3.3.3 Ways to Develop Natural Gas in Kurdistan.....	47
3.4 The Importance of The Kurdistan's Natural Gas.....	52
3.5 Kurdistan Gas Industry and Problems	54
3.6 Dana Gas Company	57

3.7 Patriotic Union of Kurdistan and Kurdistan Democratic Party	60
3.8 Baghdad and Erbil Conflict on Petroleum Revenues Sharing	66
3.9. Interview Analysis	68
3.10. Summary of Issues.....	69
3.11 Gas Fields and Disputed Territories (Kirkuk-Mosul).....	70
3.11.1 Interviews Analysis.....	73
3.12. Iraq.....	75
3.13 Summary.....	78
IV. GEOPOLITICS OF NATURAL GAS	80
4.1 Introduction.....	80
4.2 The Geopolitical of Kurdistan’s Natural Gas and Actors.....	82
4.3 Russia and Turkey’s Energy Relationship with Kurdistan.....	84
4.4 Turkey.....	90
4.5 Iran.....	95
4.6 Europe, Turkey and Kurdistan Energy Relations	98
4.7 The United States’ Role.....	101
4.8 Azerbaijan.....	102
4.9 Energy Policy: Comparing Azerbaijan and KRG.....	104
4.10 TANAP.....	112
4.11 Energy Security.....	116
4.12 Security Issues	119
4.12.1 ISIS and Militias Groups	123
4.13. Kurdistan and Geographical Limitations	124
4.14 The Future of Kurdistan’s Gas Industry	128
4.14.1 Domestic Demand and Local Issues' Scenario	128
4.14.2 Foreign Demand and External Issues' Scenario.....	131
V. CONCLUSIONS AND RECOMMENDATIONS	133
5.1 Introduction.....	133
5.2 Recommendations for Kurdistan Gas Sector.....	140
5.3 Limitations of the Dissertation.....	142
BIBLIOGRAPHY.....	143
APPENDIX A. LIST OF ABBREVIATIONS	159
APPENDIX B. MAIN GAS FIELDS IN KURDISTAN REGION CURRENTLY	160

LIST OF TABLES

	Page
Table 1. Simple Example of Data Sources and Collection Methods	28
Table 2. Gas Fields in Kurdistan.....	43
Table 3. Electricity Price in Iraq- Kurdistan by Iraq Currency.....	47
Table 4. Potential Gas Production in Kurdistan	52
Table 5. Kurdistan Political Party's Election Result 2013	65
Table 6. Potential Turkish Genel Energy Production	95
Table 7. Kurdistan Gas Production and Turkish Gas Need	95
Table 8. Turkey and KRG Gas Agreement Annually.....	95

LIST OF FIGURES

	Page
Figure 1. Map of Kurdistan Region, Iraq.....	9
Figure 2. Oil Blocks and Gas Fields in Iraq- Kurdistan	33
Figure 3. Kurdistan Gas Production.....	39
Figure 4. Current Gas Policy Kurdistan-Iraq	40
Figure 5. Gas Pipeline and Fields	44
Figure 6. Electricity Generation Sources in 2016.....	46
Figure 7. Miran and Bina Bawi Fields.....	51
Figure 8. Natural Gas Reserve in Kurdistan	52
Figure 9. Planned Gas Production in Kurdistan.....	53
Figure 10. KorMor Gas Field and Gas Active Pipeline.....	60
Figure 11. Top Two Party Voting Results in Kurdistan: 1992-2003.....	65
Figure 12. Disputed Areas between Federal Government and KRG.....	75
Figure 13. Gazprom Blocks in Iraq-Kurdistan	90
Figure 14. Potential Route of Iranian oil to Mediterranean Sea	98
Figure 15. Iraq, Azerbaijan and Kurdistan Gas Reserves in bcm.....	104
Figure 16. European Gas Imports and Demand, 2010 - 2017	110
Figure 17. Kurdistan's Potential Gas Pipeline to Access TANAP	116
Figure 18. Exxon Mobil Blocks Withdraw In Kurdistan.....	121
Figure 19. Kurdistan's Potential Gas and Oil Pipeline to Syria	128

CHAPTER I OVERVIEW

1.1 Introduction

The aim of this study is to assess the geopolitics of natural resources in Kurdistan Region with a focus on natural gas transportation to the international market. The potential for exporting natural gas and oil to Europe via Turkey may lead Kurdistan to gain economic power and could play a role in whether Kurdistan is eventually recognized as a sovereign, independent state. There are many reasons why consumers around the world are paying attention to Kurdistan's gas. Ongoing events in Turkey and Ukraine are increasing concerns regarding the stable supply of gas to Europe. Russia's gas exports to Europe rose to a record 194 billion cubic meters (bcm) in 2017 (Millard 2018). Western European countries currently account for approximately 81% of the Gazprom's exports from Russia, while Central European states took 19% of the company's exports (Gazprom 2018). However, the gas demand of 28 EU member states totaled 488.9 bcm in 2017, which was a 5.9% increase from 2016 (Henderson and Sharples 2018).

For those European countries that need more gas and gas-derived products, Kurdistan is a potential supply option for Europe in the long term (Chyong, Slavkova, and Tcherneva 2015). According to the Ministry of Natural Resources, the KRG has 45 billion barrels of oil and 5.7 trillion cubic meter (tcm) of gas (Ministry of Natural Resources 2013). In addition, the geographic distance between Kurdistan and southern

European countries is much shorter than, for example, from West Siberian fields in Russia, which currently supply much of Europe's imports, or Azerbaijan's Caspian fields. Distance will be one of the distinguishing factors in favor of Kurdistan exporting its natural gas to high-demand markets. Politically, there is also a great desire in European countries to find alternatives to Russian gas. This may explain why Tony Hayward, the former CEO of BP, described Kurdistan as "one of the last great oil and gas frontiers" in 2011 (Thomas 2017). This dissertation provides detailed information about the existing natural gas and its related policy in Kurdistan.

Kurdistan is potentially important because it may participate in pipeline projects (such as TANAP) that could carry out gas to Turkey and Europe. This dissertation proposes a positive outlook for the Kurdistan -Turkey-Europe natural gas pipeline, focusing on Kurdistan's role in the natural gas trade for energy security of Europe. This relationship could help KRG to develop natural gas policy, secure domestic and foreign markets for its gas.

It is not market dynamics alone that shape the prospects for Kurdistan's natural gas. Geopolitics, in particular Kurdistan's energy relationships with regional powers such as Turkey, Iran, and Iraq, as well as with Europe, are important considerations impacting the KRG gas sector that this dissertation examines. Finally, unlike other major energy producers in the region, Kurdistan is landlocked, a geographical fact that greatly impacts the possibilities for exporting its resources.

This study seeks to answer four questions:

1. How does the Kurdistan region government's natural gas policy function and what are the advantages and disadvantages of current policies geopolitically and economically?
2. What role does geography play in shaping resource governance (for instance, taking into consideration the fact that the Kurdistan Region is landlocked)?
3. What is the potential role of Kurdistan's natural gas supplies in the energy supply diversification of Turkey and Europe?
4. What role does Baghdad's and Kurdistan's history of natural resource revenue sharing play in the potential for Kurdistan to develop its natural resource exports?

The scope of this research includes the importance of the Kurdistan Region's vast natural resource supply and the potential for selling it to Europe and its neighbors. Questions about Russia's dependability as a supplier of energy to Europe raise the likelihood of European countries further seeking to develop ties to Middle Eastern suppliers, including Caspian littoral states Azerbaijan and Iran, as well as Kurdistan. Evidence for heightened interest in KRG gas includes the arrival of mid-size and major energy companies that have invested in the Kurdistan Region. They include MOL Company, Genel Energy, Exxon Mobil, Chevron, Rosneft, Gazprom, and DNO a large Norwegian energy company, has already signed a contract to develop Tawke oil field in Kurdistan. Many ongoing projects support the view that European countries have turned towards Kurdistan and the Caspian countries in light of ongoing political tensions

between Turkey, Ukraine and Russia. The Anatolian pipeline, Baku–Tbilisi–Ceyhan (BTC) pipeline, the new oil pipeline between Kurdistan and Turkey, and a gas pipeline now under construction linking Erbil and Turkey provide examples of investors’ desire to diversify supplies and export routes. At the same time it must be acknowledged that a lack of transparency around Kurdistan’s oil and gas export strategy and revenue expenditures is an ongoing challenge that this dissertation examines.

The significance of this dissertation is that it evaluates and demonstrates the importance of natural gas exports to Kurdistan’s foreign policy. In light of the regional government’s intent to diversify its natural gas export markets, understanding the geopolitical dynamics that influence this stated intent. Kurdistan may want to find new partnerships in, for example, Europe to solidify export possibilities in the long term, but the potential limitations presented by geopolitical realities in the broader region surrounding KRG must be thoroughly understood. However, mutual interest in the natural gas trade between Kurdistan and the European Union may also give Erbil leverage and be a tool to shape regional geopolitical dynamics, especially with the transit option of Iraq and Iran and, in the future, the Arab Gulf’s natural gas. Internal dynamics are also important considerations. The numerous possible obstacles to developing exports include revenue sharing arrangements with the Iraqi central government, the region’s challenging physical geography and relative location, and the ambiguous sovereignty of Kurdistan. As recent years have shown, there are also significant regional security concerns.

The rest of the dissertation follows as follows: Chapter 2 will review literature pertinent to the topic area. It will also outline the methods used in the study. Chapter 3 surveys natural gas policy of Kurdistan with an emphasis on the internal politics affect the gas sector and policy. Chapter 4 surveys the geopolitical dynamics of Kurdistan's gas policy with a special attention paid to external energy relationships with Turkey, Iran, Russia, and the European Union. Finally, Chapter 5 summarizes the status of Kurdistan's natural gas policy and the influence that both internal and external factors have on its development. It concludes with limitations of the study and policy recommendations for Kurdistan moving forward.

1.2 The Kurdistan Region

The Kurdistan region is an autonomous area located in Northeast Iraq that has been governed by the Kurdistan Regional Government (KRG) since 1992. The KRG governs the three governorates of Erbil, Sulaymaniyah, and Duhok (Figure 1). The KRG also governs parts of the constitutionally disputed territories of Kirkuk and the Mosul Province. Kurdistan Region is one of the federal regions of Iraq that were recognized in the Iraqi Federal Constitution of 2005. Peshmerga, the military force of KRG, took control of most of the disputed territories, including areas containing oil-rich fields in the city of Kirkuk in 2014 (Solomon, 2014 and Guardian, 2014), and this has been a point of contention between the KRG and the Iraqi government.

Kurdistan has a semi-independent government, maintains its own armed forces, has its own flag, and has its own official language. The population of Kurdistan is more than 5.2 million (United Nations Development Programme 2014). Kurds and non-Kurds

as well as Muslims and non-Muslims live in the region. Ethnic minorities in the region include Turks, Chaldeans, Syriacs, Assyrians, Yazidis, Kakayi, and Shabaks. Kurds have been largely self-governing for the past 25 years. Despite Kurdistan not having de jure sovereignty, it nevertheless operates in many respects as a free state. After attacks in 2014 by the Islamic State in Syria (ISIS) on Kurdish territories, the Peshmerga seized the Kirkuk, the center of Kurdistan's oil industry, which is a city with a Kurdish majority population but that is not part of the three official governorates. Also, the Peshmerga liberated some districts and sub-districts in Mosul from ISIS and took them under its control. More recently, there has been a loss of Kurdish control over the oil-rich areas in and around Kirkuk and Mosul. On October 16, 2017, Iraqi federal troops advanced upon the areas and captured parts of Kirkuk, including its CBD and southern area. The captured areas also included two major oil fields, Avana and Bai Hassan in the west of the city. Federal troops also took districts surrounding Mosul such as Mosul Dam and Basheqa.

Kurdistan has long border with Turkey, Syria, and Iran. Kurdistan's border with Syrian runs for a total length of 300 km; with Turkey for 600 km; and with Iran for a total of 1300 km.

There are provisions in the constitution that indicate the right of the Kurds to exercise their authority in their areas and have the full right to act, including the disposal of the wealth of oil and exploitation for the benefit of the people as indicated in Article 111, 112, and 113 (Anderson 2017).

A dramatic change in Kurdistan's natural resource dynamics happened in 2015, when the KRG began direct oil sales to the global market. This happened in two phases. First, the KRG began coordinating direct oil sales in the global market. Second, the five permanent members of the UNSC established diplomatic ties by opening consulates in Kurdistan. This marked an important step toward increased sovereignty. KRG has well-established diplomatic ties; all five permanent members of the UN Security Council have consulates in Iraqi Kurdistan as well as significant economic interests in the region, though all still ultimately recognize KRG as a constituent part of Iraq.

Since the KRG's formation in 1992, oil and gas has been a major factor in Kurdistan economic, political affairs. Presently, KRG relies heavily on oil and natural gas revenues to run its government, as the region lacks any other significant income-generating sector. Oil and gas has aided Kurdistan in regional development on many fronts. For example, hydrocarbon revenues aided in constructing large, modern universities along with shopping malls. Oil and gas revenues raised living standards but at the same time entrenched the power and wealth of Kurdistan in a few hands. The KRG is presently in economic and political crisis because it is entirely at the mercy of global market forces. Conditions have improved since 2014, when there was an influx of some 1.6 million refugees and IDPs displaced by the ISIS conflict into Kurdistan. The financial burden of caring for refugees was compounded by low oil prices, the Iraqi Federal government's decision to end budgetary subsidies to KRG, and the assault of ISIS. Also, Kurdistan's position as a semi-sovereign entity has contributed to its financial challenges, because it is unable to access credit from global financial institutions such as the

International Monetary Fund (IMF), which recognize Baghdad as the rightful recipient of credit.

On 25 September 2017, KRG held a referendum on the question of independence. Kurdish officials argued that an independent Kurdistan could become a new state and that would constitute a force of stability in the region and a showcase for democratic governance (*Reuters* 2017). KRG officials claimed that Kurds and non-Kurds, Muslims and non-Muslims, and men and women would be treated with equal respect under the law in an independent Kurdistan so that all could prosper (Arango 2017). But the situation in the disputed areas has changed when the Kurds lost control of the disputed areas when on 16 October 2017, the Iraqi army and Popular Mobilization Forces regained the disputed areas. This reduced the area of Kurdistan region by nearly half, and of particular consequence to Kurdistan, the most important oil fields in Kirkuk, such as Havana and Bai Hassan, were lost (Chughtai 2017).

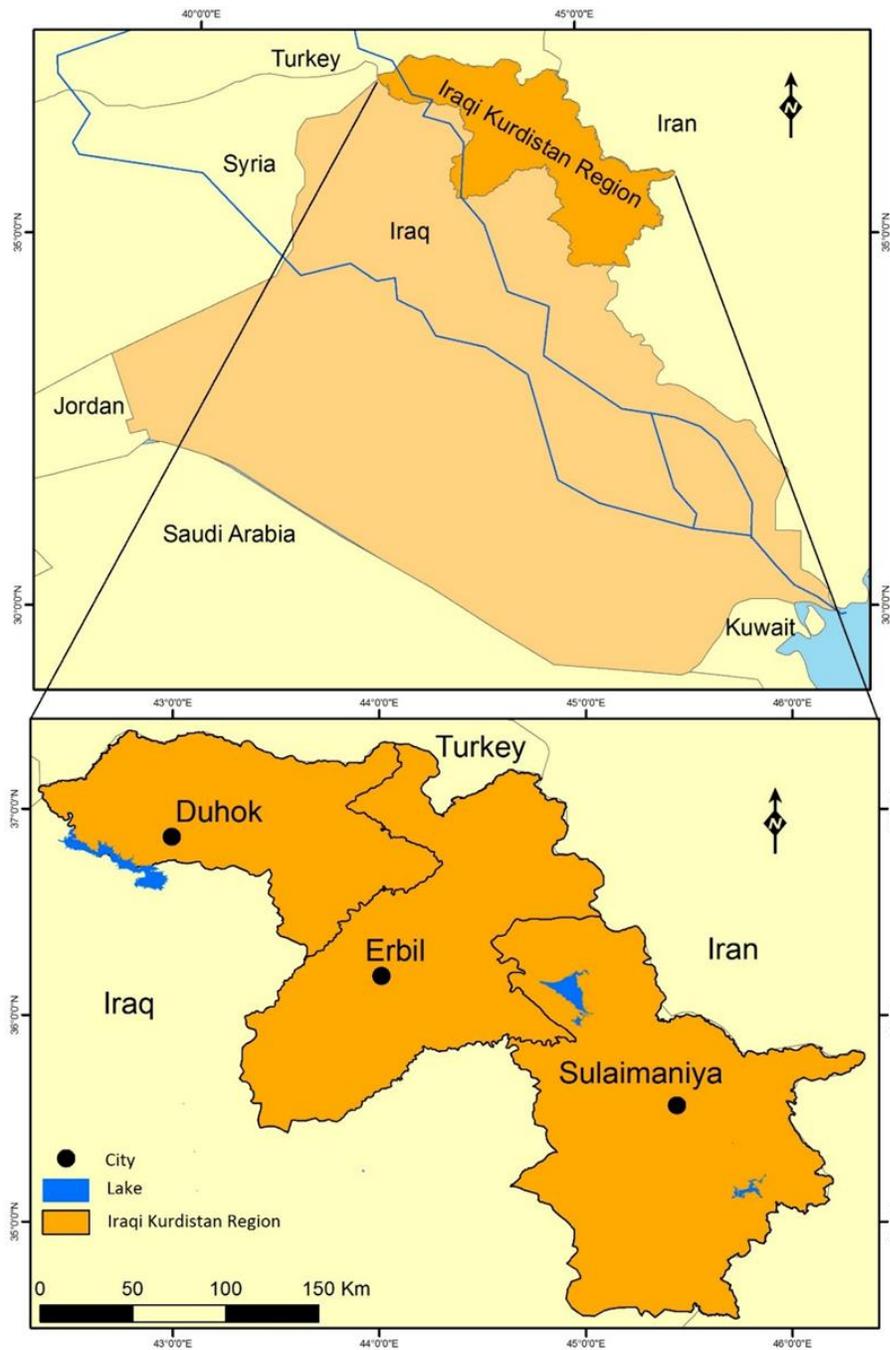


Figure 1. Map of Kurdistan Region, Iraq. Source: Author.

1.3 Kurds

There are more than 30 million Kurds living in Iraq, Iran, Turkey, and in the former Soviet republics of Armenia and Azerbaijan (*BBC News* 2017). Their homeland is found in the mountainous region lying between the Caspian and the Euphrates and Tigris river lowlands. The Kurds speak Kurdish, a language belonging to the Indo-European ethno-linguistic group. The Kurds are one of the largest ethno-linguistic groups without a state (Partlow 2008). The World War 1-era Sykes-Picot Agreement is generally responsible for the Kurds not having a state. This agreement between Britain and France essentially carved up the Ottoman Empire and placed most of the Middle East under British and French administration (Schuster 2004)

As a result, the Kurds were divided by artificially drawn borders devised by Western powers that spread the Kurds across Turkey, Iran, Iraq, Syria, Armenia, and Azerbaijan. Iraq has a Kurdish population of about five million, while the Turkish Kurds number about three times that, and a further roughly eight million live in Iran and Syria (Bazilian et al. 2017). The Kurds' cultural marginalization by the great powers began in 1920 with the Treaty of Sèvres signed by the Ottoman government after their defeat in World War I. The victorious powers partitioned the Ottoman Empire, and among terms of the document were clauses that supported the independence of the Kurds. Three years later when Mustafa Kemal Ataturk came to power in Turkey, he offered a new deal with the victorious powers to change the Treaty of Sevres to the Treaty of Lausanne, which ended the Kurd's long held vision for independence. Powerful states in the world are partially responsible for the fact that Kurds never achieved full sovereignty. One recent

example includes the United States of America's role in putting down the Kurdish revolution in 1975, when Henry Kissinger, the Secretary of State of U.S. under President Gerald Ford, helped draft an agreement between Iraq and Iran known as the Algerian Agreement. This agreement stopped Iran from helping the Kurds against Saddam Hussein's regime thereby crushing the revolution and the Kurds' best chance at separation from Baghdad. Many Kurds maintain ill-feelings toward Kissinger. Masuad Barzani, the former Kurdistan president, said the following about Kissinger:

Kissinger bears the main responsibility for the disaster which befell the Kurdish people after 1975. For me, he is enemy number one. I will never forget what the Kurds had to pay as a result of his stances, maneuvers, and the deals he made without taking into consideration the suffering these caused (Askary 2004, 64).

CHAPTER II

LITERATURE REVIEW

2.1 Introduction

The purpose of this literature review is to examine the contributions to the literature by geographers, economists, and other academics in the field of the geopolitics of energy in general and natural gas in particular. I will review three pertinent bodies of literature that inform this study and its focus. It is important to realize that because of the general lack of Kurdistan-specific literature on natural gas, I also include literature on oil, which has been exported now for some time. The first section will discuss the energy policy (natural gas) of Kurdistan region government. In the second section, competition over natural resources (natural gas) between the Kurdistan Regional Government (KRG) and Baghdad will be discussed. The last section addresses the political, geographic, cultural, and economic and stability challenges associated with distribution of natural resources with a specific focus on governance and sovereignty policy in conflict-ridden place.

2.2 Resource Competition between KRG and Baghdad

The main issues of KRG'S gas policy are tensions with Baghdad over sharing revenue and capacity and the gas extraction rights in borderlands between Kurdish and Arab areas. Al-Khatteeb (2013) examined gas policy in Iraq and KRG by considering political relationships, stating “Currently, Kurdistan’s strategy to develop its oil and gas

separately from the central government of Baghdad is to disagree upon an incorporated federal hydrocarbon law” (Al-Khatteeb 2013). Heintel discusses the negotiations between KRG and Baghdad on oil and gas law as one way to solve the problem between two governments, but concludes that negotiations on a unified federal hydrocarbon law did not resolve these issues (Heintel 2016). For example, both KRG and the Iraqi government signed contracts with international oil and gas companies independent of one another, launched licensing processes through negotiations, and concluded dozens of long-term agreements based on different fiscal regimes and legal frameworks. They justified these actions by citing their different interpretations of the constitution and regulations. KRG approved its regional hydrocarbon law in August 2007, even though it was not accepted by Baghdad. The federal government “banned” all oil and gas companies working in the Kurdistan Region for not having sought prior consent from Baghdad. Hence, many scholars identify these as the sources of the problems between Baghdad and Erbil on many issues such as gas and oil revenue-sharing, and use them as method way to predict future of energy relations between Bagdad and region (Natali 2013; Voller 2013; Mills 2016).

2.3 Ethnic Tensions, Resources, and Sovereignty

Voller (2013) predicts the presence of Kurds, Arabs, and Turkmen in the region may lead to further challenges for negotiations. Those areas rich with gas and oil as identified in article 140 of the Iraqi constitution are problematic in that there are existing disputes over which group—Kurds, Arabs, or Turkmen—can legitimately claim sovereignty over the areas. The Kurdish government has attempted to leverage support of

the U.S. over Kurdish claims to sovereignty by signing numerous oil & gas contracts with large multinational oil companies such as ExxonMobil.

The KRG implemented its hydrocarbon policy in 2007, and shortly thereafter it signed many gas and oil contracts with Turkey to export its oil and gas independently from Baghdad. The situation grew risky between the two authorities (Voller 2013). There were many efforts to resolve the problem by signing new agreements between Baghdad and Erbil, but the situation is complicated by the unresolved questions around Kurdish sovereignty and legitimacy in its relationship to the Iraqi government. Voller (2013) emphasizes that tensions over revenue-sharing could lead to war between Kurds and Arabs (Voller 2013). The entry of the Kurdish Peshmerga into many of these areas ahead of or alongside U.S. troops in 2003 made the tensions between Kurds and local Arab, Turkmen, and other ethnic groups in Kirkuk, the surrounding countryside, and other disputed territories of mixed demographic makeup even stronger.

2.4 Kurdistan Region Government Natural Gas Policy

Internally, one of the biggest domestic problems is the dispute between two parties ruling Kurdistan PUK and PDK. Some scholars used the contentious relationship between two big political parties ruling Kurdistan and Shiite parties such as the Islamic Dawa Party as one way to understand the situation between Kurds and Arabs on oil- and gas-rich fields in disputed territories (Michael 2012; Mills 2016). In addition, Voller argued that the regional interference by Iran, Russia and Turkey is one of the causes of the escalation of tensions between two political parties which have been ruling Kurdistan on sharing revenue from border customs and oil export. Also since each of the two main

party have their own Peshmerga. In this structure there is no united fighting force and this makes it easier for powerful neighboring states to interfere in Kurdistan's internal affairs (Voller 2013). In Kurdistan, as in many Middle East and sub-Saharan countries, political power tends to be concentrated among a few and less democratically distributed. This gives concentrated authority much power over economic sectors including influence on the energy sector. Layachi's (2013) discussion of the geopolitics of Algerian natural gas demonstrates the problems of such a system. He discussed the detrimental impacts on Algeria's natural gas industry when President Bouteflika became ill. While ill the energy sector was vulnerable to manipulation of those surrounding the president, which were unelected officials. Layachi (2013) surveyed the whole geopolitical situation and considered four scenarios for the future of Algerian natural gas and the obstacles facing the gas sector. Layachi (2013) notes many factors like maturing wells of natural gas, and future competitors with Algerian gas as threats to collapse. The KRG political system is a mixed Presidential and Parliamentary system in which the President has more power than Parliament and sometimes unilaterally decides how to handle oil and gas. The Kurdistan President has a good relationship with Turkey and that why most Kurdish contracts are signed with Turkey and not Iran and Iraq.

Kurdistan's present politics is similar to what Ostrowski described as "corporatism." Corporatism is a system in which party interests at the elite level strongly influence the objectives charted and the decisions made for a government (Nicholson 2012). The two big parties in Kurdistan have much authority and control most vital sectors.

One of the external problems for the development of Kurdistan's energy strategy come from neighboring countries. Turkey, for example, is concerned by the KRG exercising power over the Kurdish – Iraqi disputed areas based on the assumption that more KRG territorial control could translate into more power and be a precursor of a sovereign Kurdish state with destabilizing ramifications for Kurds living in Turkey.

Voller (2013) analyzed if Kurdish control in more territories could move them towards independence. Voller stated Turkey supports the Turkmen population of Kirkuk in order to hamper Kurdish claims to the region (Voller 2013). Kurdistan's significant reserves of hydrocarbons are a tool for pursuing full sovereignty and a means of leverage in dealing with its neighbors in Middle East. Following the incursions of transnational terrorist groups like ISIS in June 2014, the regional security situation changed. Some scholars suggested that in the future, Kurdish gas pipeline infrastructure could go through Rojava/ Kurdistan in Syria directly to the Mediterranean (Rashed 2014). Given its secular, democratic, and progressive nature, Rojava is a reliable and stable entity. Kurds can guarantee the security of the pipeline, which is likely a key issue to be addressed before investment in such a pipeline. The idea of transporting Kurdish gas and oil directly to the Mediterranean from Iraq to Syrian Kurdistan could easily become reality were, if Cohen (2006) suggests, Syria partitioned into separate states, though the prospects of this happening are quite unclear. All of this points to one major disadvantage Kurdistan faces due to its geographical location; because it is landlocked, it must build pipelines to its markets through transit states.

Moreover, the Kurdistan Regional Government's energy strategies have many characteristics that make its energy sector particularly attractive to countries that need to import oil and gas (for instance, Turkey, Germany, Italy, Greece, and Hungary) (Elliott and Beryl 2012). Ongoing events in Turkey are increasing concerns regarding the stable supply of gas to Turkey and Europe. Russia is currently supplying 30 bcm of the 50 bcm of natural gas that Turkey needs every year (Austivk and Rzayeva 2017a). But Europe's annual demand for additional gas imports may reach 80 billion cubic meters by 2020 and surpass 140 billion cubic meters by 2030 (Agence France Presse 2014). Hence, European countries need more gas and other gas resources. According to data estimates by industry experts, the KRG has 45 billion barrels of oil and 99 trillion to 201 trillion cubic feet of gas. Moreover, geographically Kurdistan is close to the southern European countries. Therefore, the European countries that are searching for other alternatives may reduce their dependence on Russia gas by seeking alternatives in a place such as Kurdistan. Tony Hayward, the former CEO of BP, described Kurdistan in 2011 as "one of the last great oil and gas frontiers" (Thomas 2017) Currently, it is Turkey that holds the key to open the door to more exports of Kurdish oil and gas. Paasche and Mansurbeg (2014) say as much in their analysis, suggesting that the KRG as a highly dependent on Turkey for export pathways to get oil and gas to market. Their analysis focuses on the KRG's fast developing energy relationship with Turkey, its implications for Turkey's energy security, and, ultimately, regional security in general (Paasche and Mansurbeg 2014). In addition to regional security concerns and access to transit states' pipeline networks, hydrocarbon prices in international trading markets and progress by KRG in making necessary reforms

influence the future of the energy sector (Mills 2016). Elliott and Beryl (2012) looked at Kurdistan's gas projects and discussed the challenges and opportunities. To understand the role of Kurdistan's gas in term of politics and economics, the authors employed two marketing scenarios. The first focused on Kurdish gas being used for domestic electricity generation. In this scenario they found that several hundred millions dollars in spending on infrastructure would lead to profit from contractors. The second looked at an export strategy to Turkish markets. This scenario suggested that returns are likely to be impacted by the volume of gas and its prices, and this would require ensuring long term contract beforehand (Elliott and Beryl 2012).

As Zulal (2012) argues, foreign policy is an important tool for Kurdistan as it seeks to develop its natural gas strategy. This involves attention to details about the relationship between foreign policy and private investment because the two are not always separate. As an example of the relationship between foreign policy and energy, Zulal (2012) noted that large international oil and gas companies had invested around US \$4 billion in Kurdistan.

Most of the classical literature on geopolitics of landlocked states focused on the influence of location vis-à-vis the sea on economic power (Spykman 1938). Moreover, there are few major published studies on the influence of landlocked location on undermining sovereignty and authority. There are also few major publication on the energy policy of Kurdistan. Some of the research focused on foreign policy but not on energy policy.

Kurdistan's neighbors have not supported an independent Kurdish state in region. Therefore, skillful diplomacy and positive relations are vital for the existence of the state (Zulal 2012). A current example of diplomacy is the 2013 Kurdish – Turkish energy agreement, which has many concessions for Turkey, including cheap supplies of gas. Zulal (2012) notes the Kurdistan's landlocked geography as a factor in its economic development, but only one of many economic factors. The author explained the history of the Kurdish Region with neighbors such as Iran and Turkey. Some researchers focus on energy as a means of building relationships with neighbors without explaining how this would best be accomplished. Gunter stated: "The two big players (PUK and PDK political parties) in Kurdistan have made trouble in the region over the past 21 years but oil and gas have reduced the tension among them. The Kurdistan Regional government (KRG) is a merely landlocked, rump territory surrounded by powerful Neighbors" (Gunter 2008, 238). While it is true that the KRG currently has no real alternate export paths other than Turkey, I argue that the energy relationship between the two sides is more complex than imagined. Moreover, Turkey's government has expressed its desire to become an important energy hub between Asia and Europe. Paasche and Mansurbeg (2014) used the complexities of regional circumstance to advise the KRG government about how it could take advantage of the many ongoing conflicts between various regional actors in order to benefit the prospects of oil and gas exports to Europe through the Turkish port of Ceyhan in the aftermath of the 2014 crisis between Russia and Ukraine and Russia and Turkey. The authors analyze the energy relationship between Turkey and Kurdistan based on factors such as the relationship between Turkish energy

companies, such as Genel Energy, working in eight oil fields, and the Kurdistan government. Also, the instability of the area in the south and the center of Iraq favors the moving forward of the energy relationship between Turkey and KRG. There is a significant relationship between the Kurdish and Turkish governments because the latter considers Kurdistan a safe haven for the investment of money in sectors such as oil, gas, and construction. Turkish companies have conducted research on those areas of interest in the quest to make large sums of money. Also, some statistics show the importance of the value of relations between the KRG and Turkey, such as the volume of trade between Kurdistan and Turkey surpassing \$12 billion in 2013 (“Turkey-Iraq Border Trade Hits Record Low” 2016). Furthermore, Dahlman (2002) explained that Turkey benefits to a greater extent than countries such as Azerbaijan, Iraq, Iran, and Turkmenistan seeking to export gas via Turkey. In addition, Qurbani (2016) analyzes the Iranian influence on KRG energy policy by discussing the Iran’s good relations with PUK party. At the same time, it must be noted that a goal of Iran’s foreign policy is to marginalize Kurdistan’s economic development, especially in oil and gas sector, because of potential competition.

Iran sees the foreign energy companies’ involvement in Kurdistan as threatening threat to the extent that it could help Kurdistan further develop its gas and oil production while Iran’s own sectoral development is inhibited by Western sanctions. However, an even more important threat to Kurdish resource development is countries such as Turkey taking advantage of Kurdistan’s disadvantageous geographic position by signing lucrative long-term (50-year) deals to export Kurdish gas to the north at low prices (*Reuters* 2013). According to Tony Hayward, the former chairman of Genel Energy, one

of the leading energy companies in Iraqi Kurdistan said along with the benefit of closeness, which will bring costs down, KRG gas will contribute 1 or 2 percent to gross domestic product (GDP). He also made a price prediction, saying the price will be half of the cheapest price Turkey has ever paid for gas (Gungor 2015). However, Turkish actors also are well aware that Kurdish gas and oil policy favors the development of an independent economy, which may lead to the creation of a state in northern Iraq. Turkey fears that outcome, but the economic considerations have caused it not to emphasize the political side of the issue (Arango and Yeginsu 2015). According to Sepil, the chairman of the board of Genel Company, turning to Kurdistan's oil and gas reserves will secure 30 billion cubic meters of gas per year for Turkey and help it cut costs (Can 2012). Can (2012) observes that Kurdistan has offered more favorable prices than Iran and Azerbaijan, from which Turkey has already bought gas (Can 2012). KRG plans to export 10 bcm of natural gas to Turkey over the next two years as KRG Natural Resource Minister, Hawrami, stated at the 2015 Atlantic Council Summit in Istanbul (Ustun and Dudden 2017). But the European market is a priority market for Kurdistan for a number of reasons—primarily geopolitical and geographical proximity. All economic expectations indicate that Kurdistan could export its gas to the Turkey by 2020.

2.5 Methodological Approach

This dissertation employs a case study method to resolve the research questions posed above. The case study approach enables the researcher to maintain a whole view of the unit of analysis and its context (Yin 2003). The case study is the energy policy of Kurdistan Regional Government (KRG). In this case, the primary data comes from

official documents and interviews with key informants from government, the energy industry, local and foreign subject matter experts, and civil society organizations. The analysis also tracks the developmental stages of Kurdistan's natural gas policy through publicly available government and broadcasting sources. The strength of the case study method is that it allows for the use of multiple sources of empirical evidence (Yin 2003). The case study design is preferred for "when", "how" and "why" questions (Yin 2003). The case study design is also preferred when the researcher has limited or no control over events, and, "when the focus is on a contemporary phenomenon" (Yin 2003). According to Yin (2003) case studies are needed when researcher want to understand social phenomena that are often complicated. Therefore, the case study is a useful way to investigate a phenomenon within its background, although the boundary between the phenomenon and its context could not always be clearly explained. Moreover, unlike survey studies, the case study method does not limit the number of variables of interest to the investigation.

The case study generalizes to a theoretical proposition rather than to a population. Therefore, the goal of the case study is to "expand and generalize theories analytic generalization (Yin 2003). The descriptive analysis of the energy profile of the Kurdistan region will give detailed information about the existing energy trade and dependency relations in the Middle East. Therefore, it explains the importance of Kurdish gas production to Turkey's, Iran's, and Europe's diversification of energy. In order to better understand the factors that influence natural gas policy in Kurdistan, this research adopts a case research design. In general, the research project considers Kurdistan a semi-

autonomous natural gas producing area that is undergoing economic and political transition. For this research project, policy is not limited to government statements, legislation, and directives, but extends to asking what the policy means to different actors, and what actually goes on before and during operation—in other words, the “actual” policy, and to what ends, and what influences and factors affected natural gas policy implementation.

2.6 Positionality and Subjectivity

My positionality as a Kurd, with both strong cultural ties to those being interviewed as well as language skills enable me to see through the eyes of those being studied (Perez 2012) and to look at the events as a participant observer because of my experience.

Because the contrasting quantitative research methods, case study strategies lack exact tools and advices, and, as Yin (2003) notes, there is no comprehensive catalog for designing case studies. Therefore, I draw upon interviews with politicians and professors to analyze Kurdish gas plans and, to explain the situation such the sovereignty and controlling the boundary that distinguish the Kurdish and Arabia area. On June 13, 2014, the city of Kirkuk and the surrounding area was seized without firing a shot by the Peshmerga, and this lead to the control of the area of Kirkuk by Kurdistan special forces. The area control by the Peshmerga makes the situation between the central government and Kurdistan government more complicated especially in term of the sovereignty, as well as the complications over the jurisdiction of energy sources and wealth between the Iraqi government and the Peshmerga. To understand the relationship between sovereignty

and energy wealth in Kurdistan, I used some similar examples of energy related conflict. These examples to examine the problem such as the conflict perspective between Arab, Kurds and Turkmen on right to extract gas and oil in Kirkuk area, which as mentioned above, is called a disputed area in Iraqi constitution. Moreover, I will examine the hydrocarbon strategies of some countries that are close to Kurdistan Region and have some common interests in Kurdish natural gas, including Turkey, Azerbaijan, Iran, and Russia.

In additions, the KRG gas plans may face security issues. For example, the PKK has already attacked pipelines at the border between Turkey and Iraq. Moreover, there is the cost of building infrastructure like pipelines and storage facilities for the oil and gas sector. Ultimately, I discuss the potential Kurdish gas plans to determine whether or not they will lead Kurdistan Region's developing an independent economy or vice versa. Moreover, I seek to determine whether oil and gas will result in the Kurdistan Region developing the status of an economically vibrant country with a diversified economy that develops its tourism, agriculture, and other sectors, or will it use oil and gas revenues simply to fuel domestic consumption.

The first objective will be to determine the complex energy relationships (internally and externally) between the Kurdistan Region and Iraq, Turkey, and Iran especially with respect to marketing its natural gas to the international market.

For example, if I discover a significant relationship between Turkey and Kurdistan, it will be worthwhile to look into the importance of that relationship to the region and its association with more economic benefits. The analysis uses trade volume

data reflecting trade relations between Turkey and the region in 2012. Yidiz, the Minister of the Turkish Ministry of Energy, spoke at a major energy conference in Erbil about vital trade (of around U.S. \$4 billion annually) between Turkey and the Kurdistan Region (Zulal 2012). I use the same trade data to show the significance of the relationships between other countries.

The second objective will explore the relationship between Kurdistan as a landlocked location and the imposition of limitations on the alternative marketing of its gas and oil in the region. Paasche and Mansurbeg (2014) explain the concept of the region having no alternative but Turkey to sell its oil and gas to in order to access European markets. I will discuss sovereignty issues between Erbil and Iraqi government in Baghdad on rich dispute territories area which live together many different ethnic groups like Kurd, Arab and Turkmen. Moreover, the future possibilities of Syria's deep water or Jordan's Gulf of Aqaba are worthy of consideration as second big-hub transit countries for gas exports from the Kurdistan Region. Presently, no study exists that attempts to explore alternatives to Kurdish crude exports.

In summary, the analysis of the KRG's foreign policy options and energy relationships with its neighbors will be a primary method for learning about Kurdistan's energy strategies and their problems.

2.7 Data Collection Sources

The research relies on mostly primary data collected from interviews, reports, statements, and media. Information was sought from the Ministry of Natural Resources in Kurdistan, international energy companies such as Exxon Mobil, Genel Energy, Dana

Gas, and DNO Company, and some nonprofit organizations such as the Door Organization for Petroleum Information of Kurdistan.

2.7.1 Interviews:

Interviews were carried out with experts working in oil and gas fields in Kurdistan. There were a total of thirteen interviews with about thirteen individuals (for more details see Table 1). Interview times totaled to about fifteen hours. Interview sessions include thorough note taking. Interviewees included members of the Ministry of Natural Resources in Kurdistan, members of Kurdistan's parliament (including MP's serving on the committee gas and oil affairs), and representatives of major energy companies (e.g., Dana Gas, Genel Energy, and other companies already invested in the region).

The process of data analysis started with the transcription of all interviews followed by analysis of the data. The transcription process also allowed me to become acquainted with the data (Riessman 1993). Most of the interviews were recorded in Kurdish and subsequently translated from Kurdish to English by me. The interviews focused on a number of issues, for instance the quantity of the exports, prices and the deal regarding agreements and the quantity protocol. I asked MPs in the Kurdistan parliament's gas and oil committee about the price of gas per meter, the price for every 1,000 square meters, the companies that have already bought and those that will buy it. I have about four questions, including those on legal and political obstacles that may impact the KRG's gas to Europe and Turkey. The interviews were semi-structured, in

that standard questions were supplemented by follow-up questions. The 'interview guide' I used included a list of questions and topics that needed to be covered during the conversation, usually in a particular order (Cohen and Crabtree 2006, 1). The interviewer follows the guide, but is able to follow topical trajectories in the conversation that may stray from the guide when he or she feels this is appropriate (Cohen and Crabtree 2006).

Interviews were semi-scripted which allowed for the addition of questions during the interview process. This was important because in some instances follow-up questions were required for further data and clarification. Ultimately this allowed for the acquisition of richer data and better understanding.

2.7.2 Primary Source Documents:

The textual data gathered for this study included any type of document related to natural gas in Kurdistan. Documents were gathered from multiple sources including different organizations including foundations and centers of politics and energy (e.g., European Energy, the Oxford Institute of Energy Studies, and the Caspian Center for Energy and Environment). The purpose of the documents is to facilitate the analysis of KRG gas policy. The KRG sometimes hides information relating to gas sales to companies and countries. For instance, the KRG and Turkey had a contract that included Turkey purchasing Kurdistan's gas for very cheap prices (100 Cubic meters for \$150) (Roberts 2016). The Door Organization for Petroleum Information of Kurdistan disclosed this information. An independent organization is working in this area. All interviews transcripts, documents, and journal entries were saved as Microsoft Word files.

The aim of this study is to contribute to Kurdistan studies by collecting evidence on Kurdistan's natural gas sector and the making of related policies. In the case of the Kurdish government, its natural gas policy is in its infancy, and therefore data will collect in this study should lay the ground for further research. The research is also designed to track complex domestic processes, politics and influences that have shaped the Kurdistan main economic sector. Finally, this study might help to compare KRG and with other countries' experiences developing their natural gas sectors.

Table 1. Simple Example of Data Sources and Collection Methods. Source Author.

Data Source	Data Source Collection Method	Interview questions
Representatives, and subject matter professionals, Public officials, company representatives from the gas industry, government and industry consultants, and petroleum organizations. Interviews taken for each members between 30 minutes -1 hours and total will be less than 15 hours	Interviews	What are the important issues facing gas sector? How do they notice, reason and problems? Are main threats economic, political, why? What is the role of parliament to develop gas sector?
Gas contracts signed between the KRG and international energy companies	Archival Research	Contracts are authorized documents that regulate the relationship between the KRG and the international gas companies? What are the power relations between the KRG and the gas companies?

		Who controls what/whom and how? How is revenue shared?
News and energy reports	Archival and Secondary Research	Why is geopolitics important for the gas sector in Kurdistan?

2.7.3 Data Analysis:

Techniques are used to analyze the data from the case with Geographic Information System (GIS) and Excel spreadsheets to create maps of Kurdistan's natural gas field and its products, as well as to create tables to show all gas fields produced at various points in time. The data were analyzed using the qualitative data analysis software MAXQDA. MAXQDA allowed for codes, categories, and themes to be developed from the data.

2.7.4 Aims and Objectives:

The aims of this dissertation are:

1. To understand the natural gas policy of KRG from many perspectives.
2. To discuss (internal & external geopolitical challenges) faced gas sector in the KRG. These goals are achieved by research the following objectives:

1. To understand the influence of neighboring states of Kurdistan and also energy companies on Kurdistan gas policy.
2. To examine the causes and consequences of the political dispute between KRG and central government in Baghdad and identifying the major challenges associated within dispute on gas wealth (sovereignty). Also, and conflict between two political ruling parties in Kurdistan (PUK and PDK) on deal with resources in other side.

This dissertation examines the energy strategies of Kurdistan and particularly how domestic and foreign factors shape KRG energy strategies.

The main justification for using the case study approach was its appropriateness for exploring participants' views on a particular subject (Shavelson and Towne 2002). Second, case study is a useful method "when the focus is on a contemporary phenomenon within some real life context" (Yin 2003 p.1). However, potential shortcomings of using the case study approach arise in its reliance on personal interpretation of data and inferences is that results are unlikely to be generalizable, and are difficult to test for validity, and rarely offer a problem-solving prescription (Yin 2003, p.10)

CHAPTER III

NATURAL GAS POLICY OF KURDISTAN

3.1 Introduction

Natural gas is a highly valued commodity globally, and its value is expected to increase in the future (Esen and Oral 2016). Kurdistan's natural gas reserves of an estimated 5.7 tcm, or 3% of world reserves, are largely untapped ("KRG Ministry of Natural Resources" 2013). Kurdistan's natural gas is enough for 260 years of future domestic use (Khncy 2016). If the KRG's natural gas were properly developed, the resource could be important both for Kurdistan's development and for consumers of natural gas abroad. However, in order to develop this resource, good policies would be needed. Kurdistan's massive reserves are also of interest to neighboring countries, such as Turkey, as well as to larger markets farther away, such as the European Union. However, internal issues in Kurdistan, such as disputes between Kurdistan's ruling parties and the Iraqi central government over revenue sharing and the type of contracts each side has signed with international companies, inhibits effective development of the resource. Moreover, territorial conflicts between KRG and Baghdad and the security of region present additional challenges.

This chapter examines the Kurdistan government's gas policy and the most important obstacles facing KRG's desire to develop its natural gas industry. This chapter

also attempts to understand how geography influences Kurdish gas policy. The internal geopolitical challenges and geo-economic situation of KRG are also discussed.

Many key issues remain unresolved between the KRG and the Federal Government of Iraq, including the right to export and the right to regulate gas resources. Another unresolved issue involves the disputed territories in Kirkuk and surrounding areas of Mosul and Delia, which are rich in oil and gas and home to Kurdish majority populations. Both Baghdad and Erbil have sought control of these territories. The territorial dispute was slated to be resolved in 2007, but that was postponed. In addition, internal challenges between the dominant parties in Kurdistan (PUK& PDK) over revenue/profit sharing as well as the role of international companies' investments have further inhibited the gas sector's development (Figure 2).

The aim of this chapter is to investigate the internal political challenges facing gas industry in Kurdistan. It answers the following research questions: 1) How does the Kurdistan region government natural gas policy function? and 2) What are the advantages and disadvantages of current policies, geopolitically and economically?

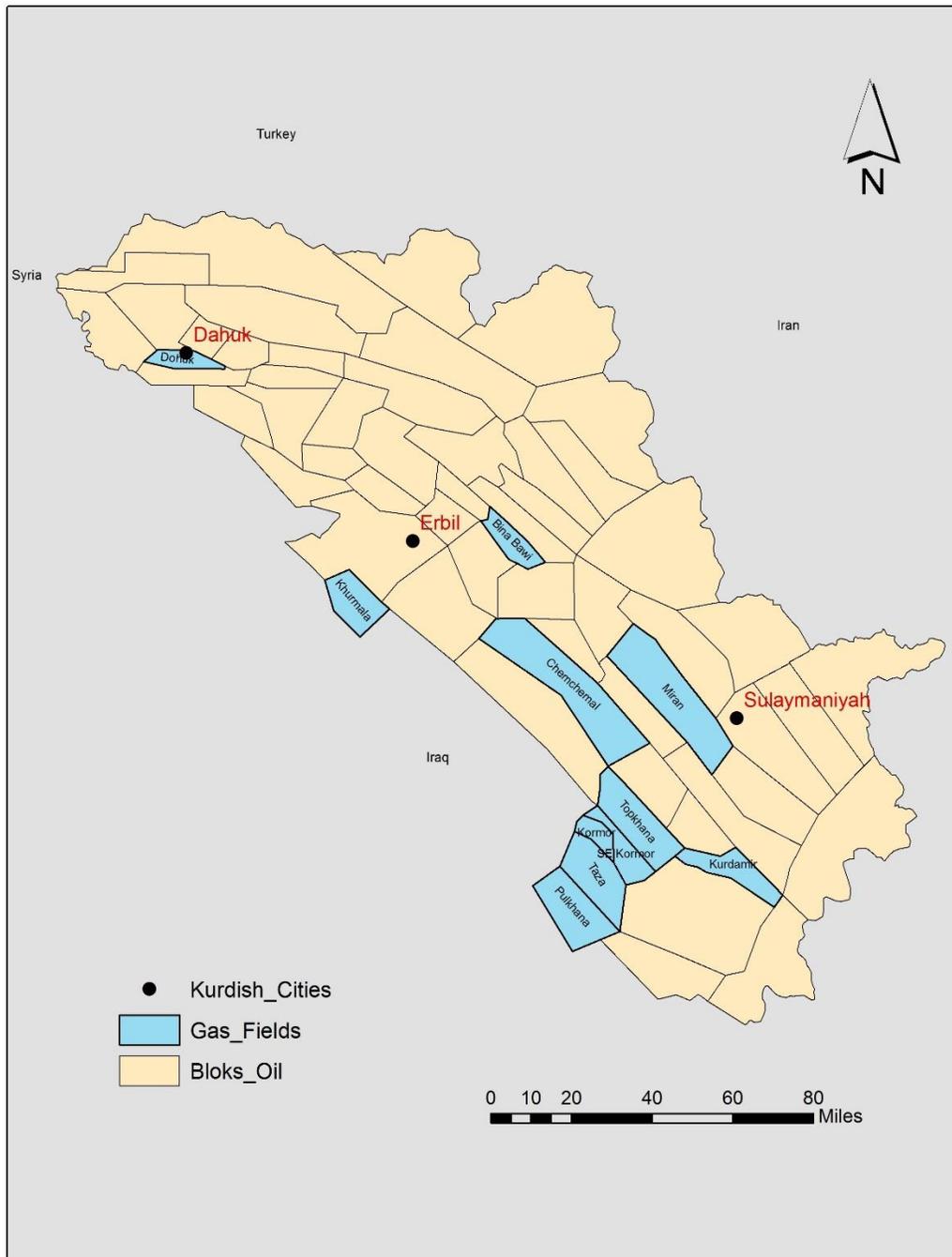


Figure 2. Oil Blocks and Gas Fields in Iraq- Kurdistan. Source: Author, based on “KRG Ministry of Natural Resources” (2013).

3.2 KRG Natural Gas Policy

Kurdistan has very rich gas reserves. Some estimates report 5.7 tcm of gas, approximately 1.5% - 3% of the world's natural gas (“KRG Ministry of Natural Resources” 2013). In 2013, KRG signed numerous energy contracts with Turkey and European Union states without the permission of Baghdad. These contracts involved production-sharing agreements with foreign companies. Kurdistan successfully opened its energy sector to foreign investors in order to improve its economy with hydrocarbon revenues. The implementation of contracts and the growing number of investments led to large increase in Kurdistan’s oil production, and the extra oil revenues stabilized the domestic economy and politics.

Kurdistan’s Ministry of Natural Resource has suggested that the geopolitical realities of Kurdistan’s landlocked geographic situation led to the government signing contracts with foreign companies to explore and to sell oil directly. Gas development in Kurdistan is less politically sensitive than oil, because there are substantial domestic demands that must be satisfied before the politically sensitive matter of exports is even considered (Al-Khatteeb 2013). After the 2007 opening of the Kurdistan-Turkey oil pipeline, which was constructed first for gas exports not oil, Kurdistan was able to export oil to international markets also after it signed gas agreement with Genel energy to would export natural gas to Turkey in 2018.

Kurdistan’s proven natural gas reserve could significantly improve the region’s socio-economic condition. It could also mean further natural resource security for Turkey and Europe. The November 2012 IEA report (“Iraq Energy Outlook” 2012) indicated in

its central scenario that Kurdistan might be able to start exporting natural gas by 2020. MNR and USGS estimate are much higher because they include unproved resources and exploration potential. The first priority of the KRG is to use its natural gas to generate electric power and meet domestic meet demands. Only after domestic demand is met would extra natural gas be allocated export for international markets. Genel Energy considers the Kurdish domestic demands may reach around 300-500 million cubic feet per day (about 3.1 to 5.2 bcm/y (Roberts 2016). Current commercial arrangements with Dana Gas provide for the KRG to pay a delivery rate for raw gas to Genel of \$1.20 per thousand cubic feet, or around \$xxx per thousand cubic meters (Roberts 2016). Electric power plants in Kurdistan account for around 42.7% of total gas consumption (Elliott and Beryl 2012). The rest of electricity is generated with gasoil, which costs KRG more than \$15 million (Hama 2016). Converting all electricity to natural gas generation would generate substantial cost-savings for the KRG.

Kurdistan plans to develop its gas separately from Baghdad and reach an agreement with Rosneft, a Russian energy company, on export. Its surplus gas could reach 30 bcf/day in 2020 (See Figure 3). The Ministry of Natural Resources plans to start exporting 10 bcm of its natural gas reserves to neighboring Turkey by either 2019 or 2020 (Razzouk 2016). The following companies operate in Kurdistan in the gas development industry: Dana Gas, Genel Energy, Kar group and Spanish Repsol. The production costs of Kurdistan's gas are also very cheap, which is another competitive advantage. The cost of gas production in Miran and Bina Bawi fields that are operated by

Genel Energy is low when compared to the cost of production associated with the Shah Deniz gas fields in Azerbaijan (Robert, 2013).

In 2013 KRG signed agreements with Turkey on natural gas supplies. The agreements with Turkey were not just to fill Turkish market with Kurdish gas but rather to export extra natural gas to European markets. In light of criticisms from scholars and politicians that KRG should not rely on a single export market, KRG wants to diversify its export markets by exporting not only to Europe, but also potentially to Iran, and through Iran, to large Asian markets such as India, Pakistan and China.

This strategy has been complicated in recent years by several factors. One is the considerable security issues facing the region, and another is low oil prices. About 2 million refugees fled to Kurdistan during the Syrian civil war and other regional conflicts. KRG is also fighting against ISIS. Moreover, KRG owes international oil and gas companies' payments for agreements known as sharing contract. All these challenges affects KRG natural gas plan.

Nevertheless, KRG has been trying to invest more in its oil and gas sector to increase productions and export capabilities because it depends on oil revenues for a bulk of state funds. An example of the dependency can be seen in a recent budget short fall. The Kurdistan Regional Government (KRG) spends 70% of its budget on salaries and pensions to about 1.5 million wage earners (Wahab 2016) but during a period of low price of oil barrel from \$100 to \$25, the KRG was sharply criticized by state employees for a reduction of their salaries; workers demonstrated in the streets to register their displeasure.

A constitutional dispute with Baghdad over sharing revenues is another problem related to energy policy. Article 140 of the Iraqi Constitution is supposed to normalize disputed areas but Baghdad has not fulfilled the terms of this Article, instead maintaining that revenues should be returned to Iraq government coffers (Abdulla 2016). As a result, KRG has also not paid international energy companies working in Kurdistan. Meanwhile, Crescent and Dana Gas, which were early entrants, had gas monetization and export strategies based on the KorMor and Chemchemal fields but were unable to make progress due to their dispute with the KRG. However, On March 21, 2018, they reached an agreement, a 10 year Gas Sales Agreement with KRG (Dana Gas 2018). KRG, under the pretext of ISIS attacks, has gained more oil and gas fields that are not in Kurdistan's official area, such as Kirkuk oil and gas fields. This has further complicated relations between KRG and the Iraqi federal government because both sides claim that article 140 gives them rights to invest and control those areas.

This is the main factor that led the Kurdistan government to approach and strengthen its economic and energy relationship with Turkey. According Kasayev (2010a), Kurdistan can satisfy only a part of Europe's strategic needs for natural gas during the next few decades. Even after the project starts working at full capacity, it will satisfy only 5% of Europe's demand in natural gas, while Russia meets the region's needs at 26% (Kasayev 2010b). The Deputy Head of the Parliamentary Committee for Gas and Oil Affairs Shaban has a different view on this, saying that KRG could satisfy 30% of EU gas demand in the future (Hawrami 2016).

Another possibility for developing new markets is that KRG could send gas to other parts of Iraq. This is because most of the associated gas in the South of the country is unable to meet local demand (Al-Khatteeb 2013). Kurdistan can supply other Iraqi provinces with liquefied gas and even feed electricity generating stations, such as those in the provinces of Mosul and Saladin near Kurdistan. Another advantage of Kurdish gas is that most of it is non-associated gas. Non-associated gas—often called “dry gas”—is unmixed with oil in one reservoir. Non-associated gas is 20% of all Iraqi gas, and most of this output comes from Kurdistan. By 2035 total gas production from fields awarded by the KRG will reach 20 bcm to 29 bcm, the overwhelming majority of which is non-associated (“Iraq Energy Outlook” 2012). Nonetheless, for energy security purpose, KRG needs to ensure it can meet local demand by 2030 (Manmy 2017). In term of price, Kurdistan gas is affordable. According to Genel energy estimates the cost of production is \$5.50 per barrel of oil equivalent, or less than \$1 per thousand standard cubic feet (Aublinger 2015). For example, in such fields production costs are less than \$3 per barrel; the price of producing one barrel of oil in the fields of Taq Taq and Tawke did not reach 3 dollars (Short 2015). This makes the overall production costs of gas and oil in Kurdistan very low in relative terms.

However, whereas natural gas has relatively low production costs, developing the resource and selling it on international markets is quite difficult because it cannot be transported from well sites by truck (Liang et al. 2012) of the lack of adequate infrastructure, coupled with security and central government relations issues described above, Kurdistan’s gas industry has remained underdeveloped (Saad 2016).

In addition, there is there is very little being done by the Ministry of Natural Resources to increase natural gas productions in Kurdistan. The Chamchamal City project, a \$6 billion proposal by Dana gas to develop a mega “gas city” with five sport stadiums among other developments, has been aborted because of legal woes (Hama 2016). KRG’s legal issues with Dana gas, the only company that has invested Kurdistan’s natural gas, has slowed the company’s work so that that KRG likely could not export gas to market by 2019-2020 (Hama 2016). To meet that timeline, Dana would need to be working constantly. According to Hama, the natural gas plan for KRG has completely failed due these reasons. To know about KRG’s Gas Policy structure see (Figure 4).

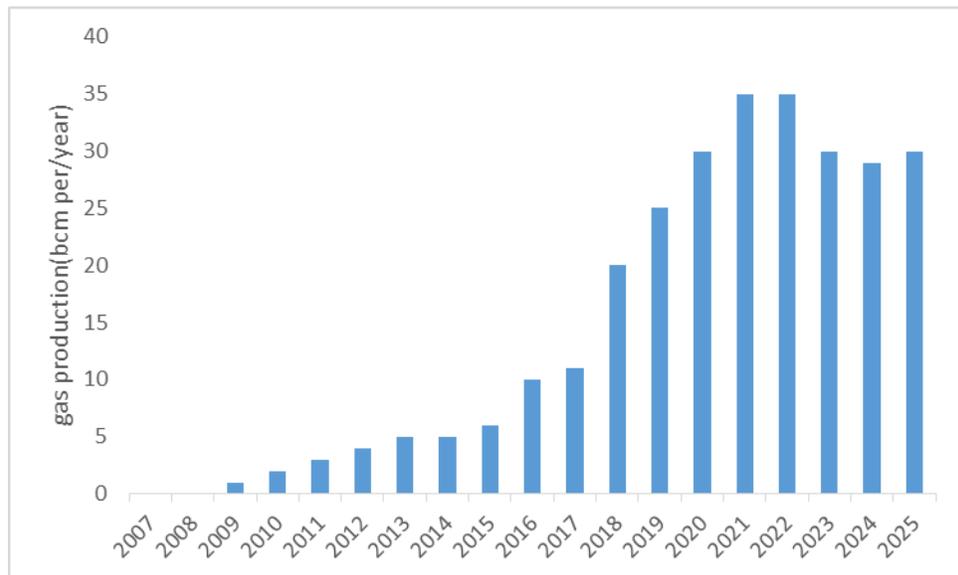


Figure 3. Kurdistan Gas Production. Based on some Scenarios from Al-Khatteeb (2013); Roberts (2016); “Genel Eenergy” (2017).

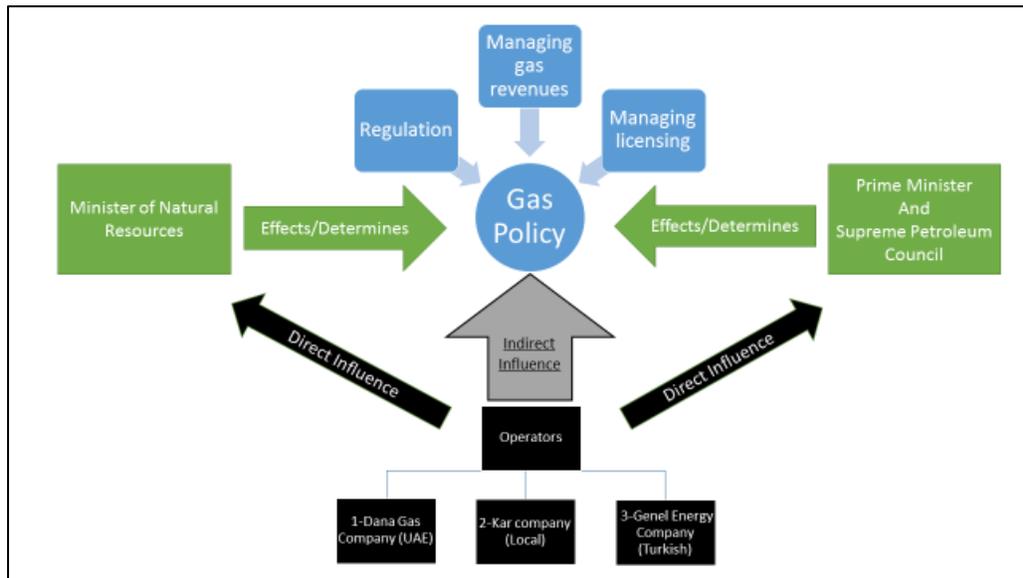


Figure 4. Current Gas Policy Kurdistan-Iraq. Source: Author.

3.3 Natural Gas Infrastructure of Kurdistan

Natural gas production has attracted many consumers and companies because of increasing demand and its favorable properties for industrial uses as well as its cleanliness (“Natural Gas Demand NaturalGas.Org” 2013). Natural gas consumption is growing more than any other energy source. According to the annual data issued by Exxon Mobil in 2016, the demand for natural gas in world is increasing by 1.6 percent annually, in contrast, the demand for oil by 0.8 percent (“The Outlook for Energy: A View to 2040” 2016). However, because the global distribution of natural gas is uneven, functioning markets are needed to facilitate the trade of this commodity. In addition, long-term storage of large volumes of natural gas is very difficult. Kurdistan has no more than 176 km of natural gas pipelines to deliver natural gas from KorMor gas field to two plant power stations in Erbil and Bazian in Sulaymaniyah, while the Summail field,

which was supplying the Dohuk power plant, has run into production problems. If Kurdistan is to develop its natural gas to improve the economic and human condition, new pipelines and infrastructure will be needed.

Kurdistan natural gas infrastructure is currently inadequate and in poor condition. Kurdistan needs to build storage, facilities and more pipelines to deliver natural gas from fields to end users. Yet strategic and thoughtful planning is also needed before new pipelines are constructed because of the high up-front costs and the fact that once they are built they cannot be moved. The Botas Turkish oil and gas Company announced construction of natural gas pipelines from Şırnak to the Kurdistan border (Rasheed 2016). This project is tied to an agreement between KRG and Turkey will supply Turkey with the cheapest natural gas in region. The establishment of natural gas export to Turkey would bring several benefits to Kurdistan. First, it would mean a real diversification of natural gas exports, which would provide solutions to the current infrastructural-geographical limitations of Kurdistan. Second, Turkey, Europe, and USA may provide an influential boost to independence of Kurdistan through political support. Third, it will mean improvement of Kurdish gas infrastructure. However, there are many constraints associated with security and conflict between states in areas with differences of ideologies. Between 2007 and 2016, no pipeline capacity was added in the Kurdistan because of crises associated oil price declines and conflict between Iraq government and KRG on sharing petroleum revenues. Also, ISIS attacks have displaced people from Syria and southern Iraq. All of this has making improvement to natural gas infrastructure more challenging.

Another possibility is for the regional government to expand the capacity of the existing gas pipeline that carries gas from the KorMor field to power stations in Erbil and Sulaymaniyah instead of adding another new, expensive gas pipeline. Because of increase population of KRG demand of natural gas to generate electric power will increase by 2025 (“Reshaping Kurdistan’s Regional and Global Footprint: Energy” 2013).

Table 2. Gas Fields in Kurdistan. Source: “KRG Ministry of Natural Resources” (2013).

Gas Fields location	proven	Produce
KorMor	1.8 TCF	350 Mmscf+15k Condensate Per Day
Chamchamal	2.07 TCF	200 Mmscf per day
Khurmala	3.669 TCF	100 mnscfd of associated production comes from local firm KAR’s Khurmala assets- Local firm Kar also has expansion plans and is looking to double output of associated gas to around 2.1bcm/y
Kurdamir	2.3 TCF	150 mnscfd (1.6bcm/y)- 18bcm/y in 2020 and exceed 25bcm/y by 2022
Miran	3.5 TCF	6 bcm/year
Bina Bawi	4.9TCF	5 bcm/year
Shaikan	1.3 TCF	
Summail		200 mmscf/d.- 40km, 36- inch line which links the relinquished Summail gas field with the 1GW Dohuk power station
Sheikh Adi	0.4 TCF	
Atrush	854	0.1
Topkhana	55	1.7
Taq Taq	579	0.1
Miran and Bina Bawi		The two fields are slated to provide an initial 6.2bcm/y before reaching 12.4bcm/y over a two-year Ramp-up progress.

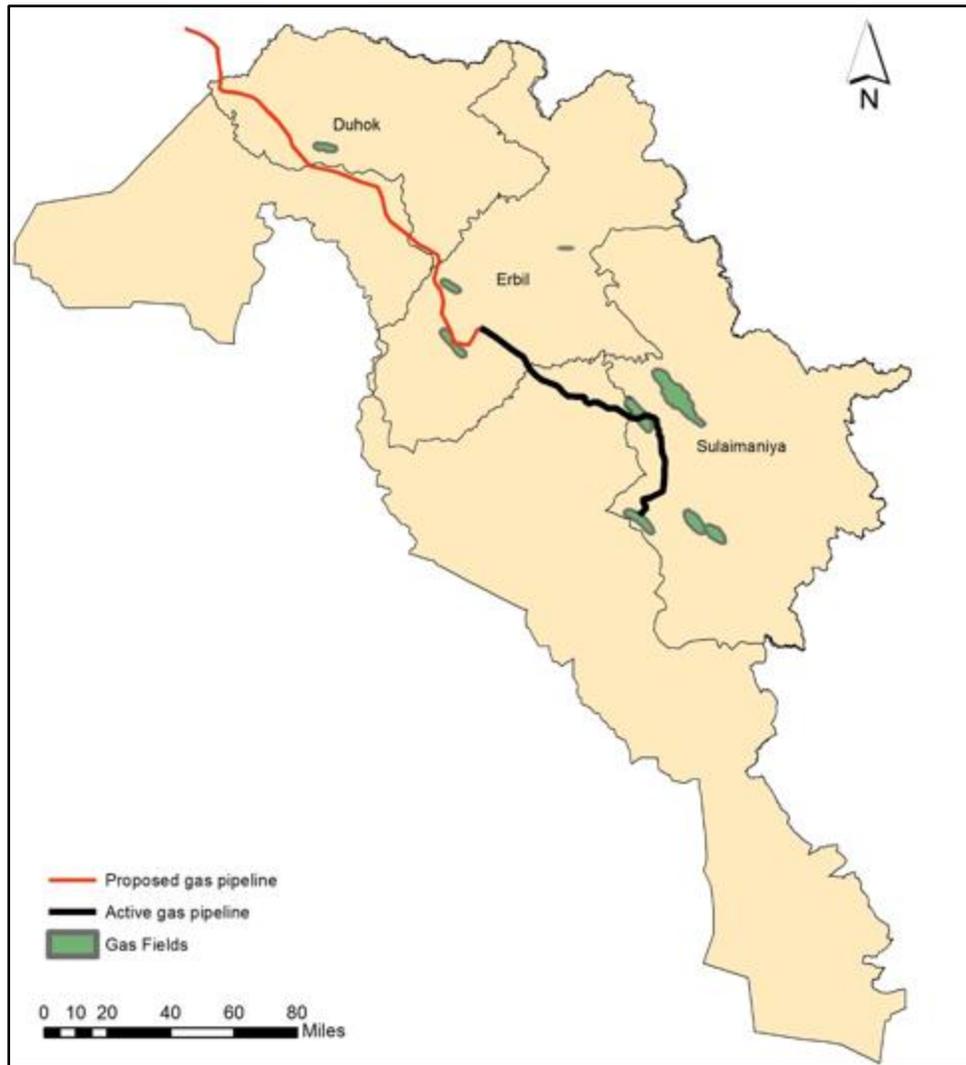


Figure 5. Gas Pipeline and Fields. Source: Author, Based on “KRG Ministry of Natural Resources” (2013).

3.3.1 Electric Generation from Natural Gas:

The transportation and distribution of natural gas domestically is performed by the Dana gas. There are twenty-eight turbines, 8 in Erbil, 8 in Sulaymaniyah, and 8 in Duhok. Electric power plants account for around 42.7% of the total gas consumption (Saad 2016). Because Kurdistan’s gas is under high pressure, it is highly suitable for

power generation. The 500 MW power station in Erbil and the 750 MW power station in Sulaimanyah run on natural gas. The Erbil, Sulaymaniyah and Dahuk plants, powered by 24 GE 9E gas turbines, produce more than 3,000 MW, the equivalent of the required annual energy needs of approximately 3 million households in Iraq (“GE’s Gas Turbines to Help Provide Uninterrupted Power in Iraq | Business Wire” 2018). The largest power generation station in Kurdistan is the Erbil Gas Power Station (EGPS), located about 22 kilometers south of the capital city. The plant, rated at approximately 1,500 MW in combined cycle mode, is the largest power plant in Iraq. Most of the electricity is consumed in Erbil. (Electricity source Figure 5). The KRG had a plan as of 2013 to export electricity to liberated areas of Mosul and South West to Kirkuk to help these areas to alleviate power shortages while increasing revenues for Kurdistan. Also, the gas pipelines from Khurmala to Sumel power plant in Dahuk province has begun to carry out 11 million cubic meters per day. The Duhok power station gas which is produces 1,500 MW needs as much as 120 million cubic feet per day. In Sulaymaniyah Gas Power Station the project utilizes the gas turbine exhaust heat emissions to produce steam. This process increases the production without using extra fuel; it also reduces the amount of CO₂ emissions and frees the environment of combustion emissions (“Erbil Gas Power Station (EGPS)” 2018). There are also two hydropower stations, but these only sporadically produce 180-200 MW, equivalent to 15% of the regions demand. If the KRG continues to work with Dana Gas to build a gas city in Chamchamal, it could double the current level of gas production. In Chamchamal dig one well in 2009, from 2010 to 2011 work have been suspended.

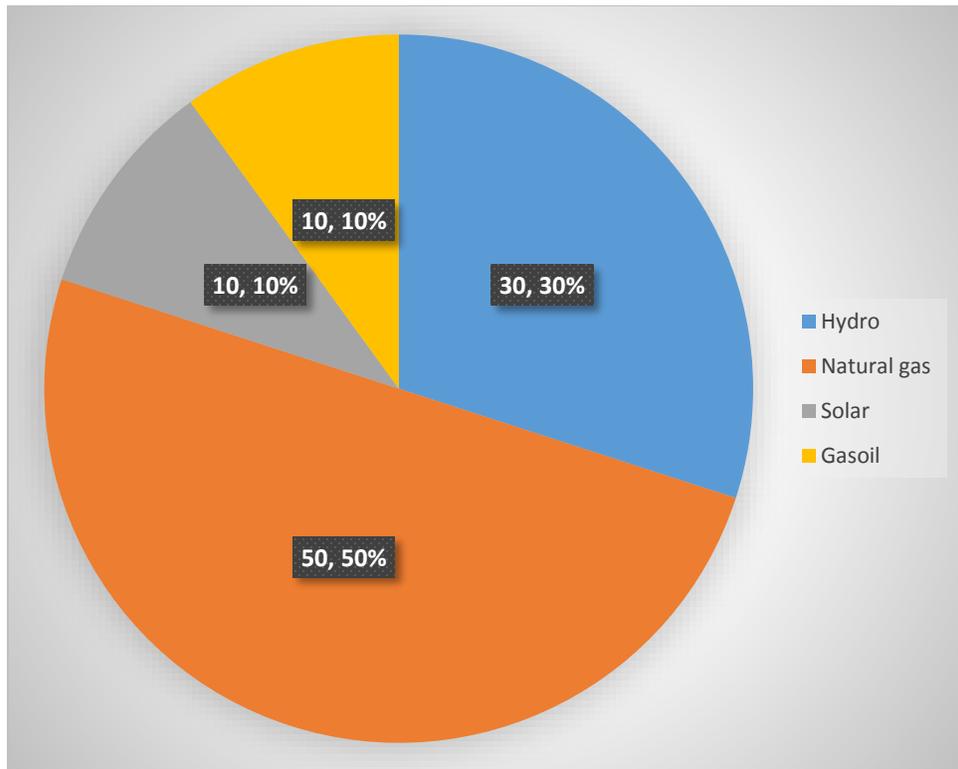


Figure 6. Electric Generation Sources in 2016. Source: Kareem (2012); Husami (2007); “Iraq Energy Outlook” (2012).

3.3.2 Subsidies:

KRG is looking at a number of reform initiatives after declining oil price brought about massive impacts on the economy of region. KRG has been undertaking some reform right now such as reducing civil service salaries. KRG is looking at reducing subsidies, but not in politically sensitive sectors such as fuel, electricity, and the size of the civil service. Based on 2014 oil prices, KRG achieved over \$3.4 billion of recurring annual savings in fuel costs for the Kurdistan Regional Government (KRG) from the migration from diesel-to-gas to fuel power plants (“Pearl Petroleum Co. Ltd.” 2018). The reduction of greenhouse gas emissions as a result of this switch at both power stations is

valued at about \$300 million annually (Pearl Petroleum 2017). The KRG has diversified source in many ways, including the reduction in electricity fuel subsidies and use of a biometrically registered electronic payment system for salaries. Nevertheless, the subsidies issue continues to be a problem. In the province of Dahuk, for example, due to a shortage of gas, a power generator paid about \$100 million for the purchase of diesel, while at the same time the government unsustainably sells electricity that it pays 11 cents per KWH to consumers at 1.9 cents per kilowatt-hour. Moreover, KRG doesn't have appropriate mechanisms in place to collect electricity bill. See Electricity Price in Iraq-Kurdistan by Iraq currency (Table 3).

Table 3. Electricity Price in Iraq-Kurdistan by Iraq Currency. Source: Husami (2007).

Price by \$/kW.hr	Price by New Iraqi Dinar/kW.hr	Class (kW)
0.08	100	1 - 1500
0.33	400	1501-2100
0.58	700	2001-3000

3.3.3 Ways to Develop Natural Gas in Kurdistan:

The prospects for Kurdistan playing an appreciable role in regional and global gas markets are significant. However, the region is a relative newcomer on the energy map, but several events in recent history set it up for becoming a major player. First, it freed the territory from Saddam Hussein's military control in March 1991. Second, it challenged Iraq's dominant role in the energy activity by signing contracts in 2007 with many foreign oil and gas companies. And third, it has been committed to the construction of the new pipelines in order to deliver gas and oil to the Turkey and Western markets. In

November 2013, KRG and Turkey signed a 50 year gas export agreement, which should KRG exporting natural gas to Turkey around 10bcm/y by 2017 (“KRG Plans 10 Bcm in Natural Gas Exports to Turkey in Two Years - ENERGY” 2013). There are many Turkish energy companies ready to invest in such a biggest gas fields in Kurdistan. The notable gas fields in Kurdistan which are Miran and Bina Bawi operated by Genel Energy. Development of the Miran and Bina Bawi fields with 350-400 bcm of gas reserves by Turkish-British company Genel Energy is ongoing with an estimated cost of US \$2.9 billion (Short 2015). In the light of this development the KRG and Turkish government began negotiations to build the new pipelines to export gas from Kurdistan to Turkey (Rzayeva 2018). However, financing of a US\$2.5 billion, 250 km pipeline remains unresolved, despite the fact that construction in Turkish territory has already begun, and completion is possible within a relatively short timeframe (Rzayeva 2018).

The primacy of energy security and supply diversity in regional politics has resulted in the construction of numerous pipelines over the years, including Turkish stream, Blue stream, and more recently, a new pipeline project between Azerbaijan and Turkey to carry out Gas from Shah Deniz to Turkey. This project is interesting because it is being developed with a 31 bcm capacity, which Azerbaijan alone cannot fill with the Shah Deniz fields (“TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT | TANAP” 2018). Therefore, the Turkish and Azeri investors want to find more partners. Hence, Kurdistan gas would appear in a good position as one of the sources to fill the TANAP with 3 to 6 bcm of natural gas. The main advantage of KRG’s participation in TANAP is its favorable geographical location in relation to the pipeline and the fact that

and Kurdistan gas would not need to transit through a third country before reaching TANAP. The closet point between KRG pipeline and TANAP is 580 km.

The path of the pipeline addition to reach TANAP will be going throughout the Kurdish region from the west of Kars to Erzurum. KRG expects to be in a position to start delivering up to 20 billion cubic meters of gas a year into the Turkish and Europe markets (Roberts 2016). The two big gas fields Miran and Bina Bawi in Kurdistan (Figure 7) expect proven reserves of 230 bcm of gas in both fields to be ready for sale (“Genel Energy Plc Trading and Operations Update” 2014). The domestic consumption of gas in Kurdistan will be 35-500 million cubic feet per day and about 3.1 to 5.2 bcm /y (Short 2015).

The price of Kurdistan’s gas is favorable, KRG will pay to deliver rate for raw gas to Genel of \$1.20 per thousand cubic feet. One of the important things relates two fields (Miran and Bina Bawi) productions is the cheapest in term of productions in two fields, the cost for production for per thousand cubic feet will be less than \$1 when compare with Azerbaijan offshore gas it means it is four times cheaper. KorMor fields production is also relatively inexpensive, with Dana gas company produceing around 340 million cubic feet per day equivalent around 3.5 bcm /y (“Kurdistan Region of Iraq” 2015).

KRG wants to involve more important energy companies in the gas sector. The Spanish Repsol company is working to develop Kurdamir and Topkhana gas fields. According to Ministry of Natural Resources Kurdistan gas production will reach 20 bcm by 2020. There is an agreement between the Ministry of Natural Resources and Genel Energy to distribute gas in the Miran field to the following 6.6 billion cubic meters to

Turkey, 2.2 million cubic meters to Iran and the rest to local consumption estimated at 11.8 billion cubic meters (“Genel Energy Plc Trading and Operations Update” 2014). Moreover, Kurdistan could establish a petrochemical industry from gas and help economic development by creating more job opportunities. Another option for landlocked Kurdistan is to export.

Wahab (2016) suggests it is still better for KRG to deal with Iraq’s central government, because in the new constitution, the Kurdistan region is part of a federal Iraq and the KRG has no right to act as it pleases. Also, Iraq has a sea outlet in Persian Gulf, which would allow Kurdistan to export gas to Asia’s growing markets. Additionally, he believes, KRG and the Iraqi Government should create a commission between Baghdad and Erbil to manage gas and oil sectors. Such a compromise would provide conflict resolution and a more stable entity working together (Wahab 2016).

Some interviewees had a different view on KRG and Iraqi Government cooperation. Some stated it would be better for the government of Kurdistan to deal with Turkey in terms of energy as a substitute for Baghdad, because Turkey’s existing facility and infrastructures are ready to be used by Kurdistan for the export of its gas and oil.

The Turkish government also has an understanding with the Kurdistan Regional Government, for example, expressing its willingness to buy Kurdish gas, without pre-conditions on the quality, and it also expressed willingness to provide financial support to the KRG to develop its gas sector, because mutual benefits. In this way, KRG would follow an example set by Azerbaijan, which constructed infrastructure in order to export to Turkey and beyond. Under this model, according to one interviewee, with higher oil

prices and increasingly stability in the security situation, Kurdistan could, as Azerbaijan did, export gas to Turkey for 10-12 years without problems (Saad 2016).

Another promising solution would be reforms that encourage saving hydrocarbon revenues in case oil and gas prices drop. This would involve setting up two wealth funds like those countries of Norway that will fund projects and other sectors. A regional government should consider a funding model that does not rely too heavily on consistent oil and gas revenues, by, for example, setting up a special “rainy day” fund for emergency situations as other countries rich in oil and gas have done to keep essential government services running. To advance this goal, the government should avoid issuing payments to every citizen indefinitely, which creates habitual dependence on government funds.



Figure 7. Miran and Bina Bawi Fields. Source: “KRI Gas Assets” (2016).

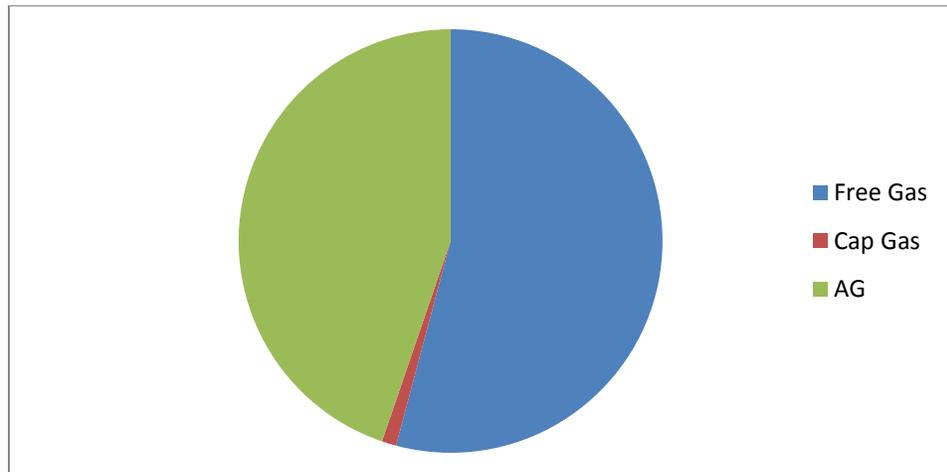


Figure 8. Natural Gas Reserve in Kurdistan. Source: Al-Khatteeb (2013).

3.4 The Importance of The Kurdistan’s Natural Gas

A few important issues about Kurdish natural gas must be raise. First, natural gas is more difficult to monetize than oil. Also, the quality of Kurdish gas is different from fields to others. According to deputy Iraqi oil ministry, Natural gas in the southern fields contains 22.6 percent of NGLs, 1.5 percent of CO₂, and trace amounts of sulfur, while their northern counterparts contain 13.1 percent of NGLs, 4.3 percent of CO₂, and 7.2 percent of hydrogen sulfide (Al-Khatteeb 2013). The Kurdistan gas in Miran and Bani Bawi fields is sour, and costly to develop. Interviewee explained

Nobody is willing to invest due to political risk. For example, the two grand gas fields in Kurdistan, which is Miran gas, has about 9-10 of CO₂ and H₂S [Hydrogen sulfide] in Bina Bawi around 20 Percent (Saad 2016)

Table 4. Potential Gas Production in Kurdistan. Source: “KRG Ministry of Natural Resources” (2013).

Kurdistan gas production /bcm	2020	2025	2030	2035
	30	35	36	29

KorMor p/d	311 MMscf,	-	-	-
condensate	13,578 bbls	-	-	-
LPG daily average rate of	729 MT	-	-	-
electricity	1,750 MW	for millions of people		It is also achieving over US\$ 3.4 billions of recurring annual savings in fuel costs for the KRG for power generation, calculated to total close to US\$ 16 billion in savings from the start of



Figure 9. Planned Gas Production in Kurdistan. Source: Al-Khatteeb (2013); Short (2015); “KRG Ministry of Natural Resources” (2013), “KRG Ministry of Natural Resources” (2013); Short (2015).

3.5 Kurdistan Gas Industry and Problems

The main problems facing Kurdistan gas industry are the lack of transparency on the financial side of industry, and the current lack of modern and technically sophisticated infrastructure. There is little transparency in the processes of funding projects, selling gas, and revenue sharing. There is no accurate data published on gas productions by KRG and Dana Gas, and this contributes to a lack of transparency. However, there are annual reports, but they reflect only volumes produced estimate.

The technical issues are seen in the costs to upgrade to required infrastructure. According to specialists, to build the 1 km pipeline to export gas cost KRG 1 million dollar (Saad 2016). KRG does not have enough money currently. The gas infrastructure need investments and KRG cannot borrow money because is not an independent state. KRG is unable to take loans from large multinational banking institutions such as the IMF or World Bank because of its lack of full sovereignty. KRG decided to build the new pipeline separate from the pipeline under Iraqi authority in Faysh Khabur to develop gas industry. This would be unsupportable for Baghdad. There are also other problems. There is no actual reliable estimate of proven Kurdish reserves or quality data, in part due to the data creation process lacking transparency and quality control (Hama 2016). The Ministry of Natural Resources has signed 52 oil and gas contracts but with no strategy in place for determining how to do so. Every contract should go through the Ministry of Foreign after discussion in parliament. If the parliament agrees, contracts oil and gas contracts should be signed by the Ministry of Natural Resources. Passing contracts by Parliament is the legitimate way to ratify them, and doing so would make the process

transparent (Hassan 2016). There is no transparency and legal documents for gas contracts and monopolies by political parties like PUK and PDK currently exist.

One interviewee further highlighted issues standing in the way of developing Kurdish gas. First, there is no way to export gas because KRG needs \$10 billion to build gas infrastructures to export gas to market. Second, the gas fields in Kurdistan contain many impurities. Money is needed to clean it because it has sulfur at the bottom well lines between 1-5 and 6-7 of gas, especially in Miran and Bani Bawi gas fields (Zulal 2016). Kurdistan has sweet gas in limited fields such as in KorMor, Kurdamir, and Sarqala. Producing gas requires storage facilities and pipelines that are not compatible with oil. No one is ready to invest in Kurdistan because has a bad reputation related to unpaid wages to energy companies. Also, gas prices are historically low. Kurdistan gas needs \$20-25 billion to develop infrastructure and storage. Another problem is that KRG is looking for revenue rather than thinking about how do develop a sustainable economic basis, such as by developing its petrochemical sector. Natural gas is one main source material for the petrochemical sector.

KRG cannot succeed in the gas sector like the oil sector (Wahab 2016). Oil companies looking for a fast return on investment do not want to invest \$10-20 billion over 20 years (Saad 2016). An interviewees said:

The big oil companies are looking for oil in Kurdistan not for gas, because the oil is easy to profit from. Gas costs because technologies are needed for its production, and for this reason when the companies discover the gas instead of the oil, they give up and say to the government I will not invest in the gas sector. In the event of an improvement in the price of oil, the government can use oil revenue to develop a gas sector (Saad 2016).

Estimates of KRG's reserves also vary widely. While an investor estimates there are 80 tcf, KRG claims more than 160 tcf (Manmy 2017). Huge investments are needed in order to make the sector viable, in general, Kurdistan's gas development need stable politics and a secure investment environment. More, the security, financial and locational issues hamper development the gas sector. Geography contributes to vulnerability of pipelines, oil prices, terrorism, corruption and economic mismanagement. Kurdistan's economy is heavily dependent on hydrocarbon exports, it accounts for 95% of revenues. Those economic problems led KRG not to pay salaries and owe by gas and oil companies. The economy of Kurdistan is very vulnerable because its hydrocarbon trade accounts for 98% of all exports earnings and 90% of budget revenues (Dziadosz 2017). KRG has also not paid debt owed to foreign international energy companies.

In Kurdistan, top leaders usually to create oil and gas policy. The second issue involves the intervention of political parties in the gas and oil deals, as well as appointing persons who are subordinated to the parties that do not have sufficient experience in the places of the task that manages the gas and oil sector and may create a situation of corruption that may affect the process of building the oil and gas plant and its administration.

Corruption remains a significant problem in Kurdistan. Elites rarely hide their misbehaviors. For example, one of the earliest forms of corruption associated with the energy sector came from Hawrami's relationships with DNO Company. Hawrami (Ministry of Natural Resources of KRG) was given bribes in the form of money. The

most common example of corruption involves the divesting of energy revenues to bank accounts outside Kurdistan.

The problems with this system is that political-party objectives and those of the energy sectors often do not match, which leads to internecine elitist conflict and societal turmoil. For example, Barzani's son-in-law and Talabani's son led Kurdistan's sovereign wealth fund, which should have been under parliamentary control. They were still in control even after national demonstrations. The sovereign wealth fund has been undergoing some changes that include reducing bureaucracy and improving the fund's "strategy" in developing the region's economy, such as by hiring an international company to audit its funds. To the Government of Kurdistan in the years before the war on ISIS, urging them to use their sovereignty and wealth to serve the community but the war, corruption, problems with energy companies, as well as the price of oil all affected on government imports and affect negatively on the development of the gas industry. KRG has shortcomings in the management of the oil and gas file to be non-transparent as well as my signing of the secret contracts with Turkey away from the control of the Government of Baghdad even hidden from the Parliament of Kurdistan, a legitimate representative of the people of Kurdistan.

3.6 Dana Gas Company

Dana gas is the largest company operating in the Kurdistan natural gas sector. Dana gas was producers most of Kurdistan's natural gas. Dana Gas Company, according to an agreement with the Kurdistan Government, has the responsibility to supply all power stations in the region with natural gas. In 2008 the company started to produce gas

in KorMor field. The 176 km of pipeline was established by Dana gas and affiliates such as Austria's OMV and Hungary MOL to interconnect and feed all three power plants in Erbil and Sulaymaniyah with gas ("Kurdistan Region of Iraq" 2015). The Pearl consortium has rights to develop gas and petroleum from the Khor Mor and Chemchemal fields for 25 years ("Pearl Petroleum Co. Ltd." 2018). Under the terms of the agreement, Crescent Petroleum and Dana Gas were given exclusive rights to appraise, develop, process, market and sell petroleum from the substantial KorMor and Chemchemal blocks. This was the first phase to provide natural gas supplies to fuel two major domestic electric power generation plants being built in Erbil and Chamchamal, It also supported for local industries and export. Dana gas sells LPG Gas by itself around 1400 ton /d. It also sells condensate gas 470 ton /d less than 370\$ (Hama 2016).

Furthermore, after KRG settled a case with Dana Gas by paying \$1 billion to Pearl Consortium starts working at full capacity it will satisfy 5% of Europe's demand in natural gas or enough to supply the whole of Europe for one year (Zhdannikov 2017a). Russia only meets 26% of the region`s needs (Dickel et al. 2014). Moreover, KRG has focused its attention on gas, announcing that a 461 –million square –foot site for building the Kurdistan gas city has been designed for development cities by crescent petroleum and Dana gas ("Dana Gas and Crescent Petroleum Announce Establishment of 461 Million Square Feet Site for Kurdistan Gas City" 2008). The Kurdish city includes industrial, residential and commercial components at an estimated cost of over \$3 billion ("Dana Gas and Crescent Petroleum Announce Establishment of 461 Million Square Feet Site for Kurdistan Gas City" 2008).

In light of ongoing disputes, KRG and Dana gas opened a claim in London Court of International Arbitration. Dana gas has won an arbitration award against the Kurdistan Regional Government that could potentially unlock almost \$2 bn in unpaid invoices (Kerr 2015). But KRG claims that Dana gas has shared interest with five companies (35% Dana gas, 15% crescent, 10% ONV, 10% MOL, 10% RW) without gaining permission first from KRG, which controls 20% of the venture. However, the most significant challenge is the pricing of long-term contracts with Dana gas in the current era of a global abundance of gas supply. Dana Gas said the consortium had invested \$1.2bn to produce the equivalent of 150m barrels of gas and petroleum liquids, benefiting the local economy (Kerr 2015). However, KRG has refused the Dana Gas allegation and they said Dana gas want to increase its market shares. As a result, KRG could not pay money to secure enough natural gas feedstock for electricity generation, which meant that only 8 to 10 hours of electricity per day was being produced.

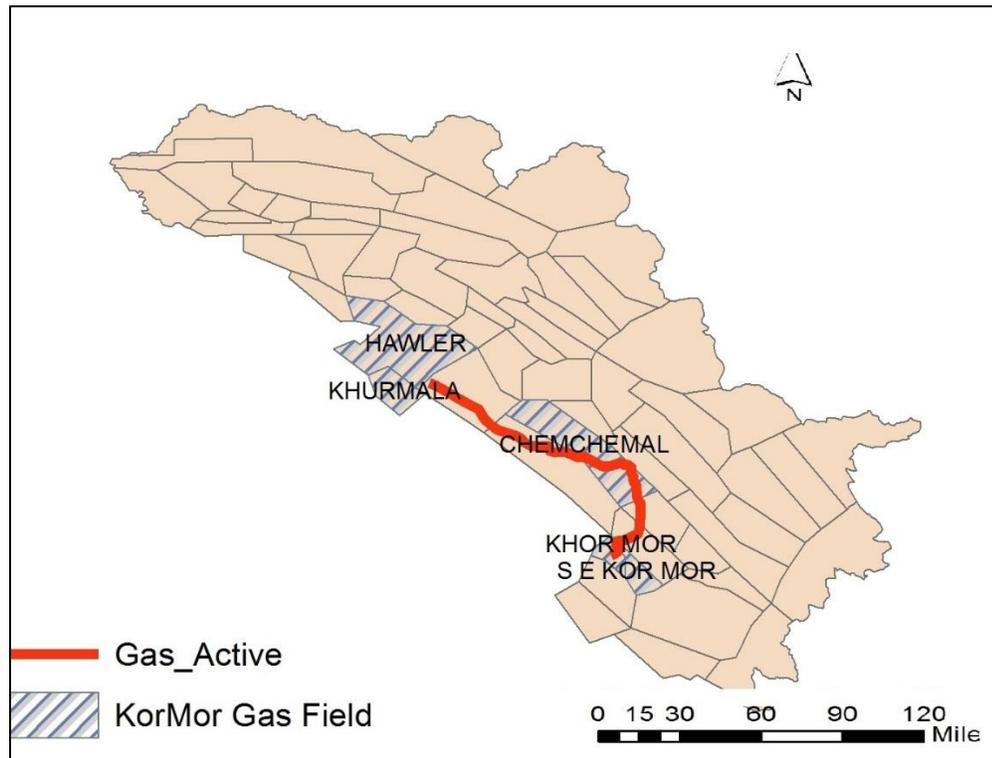


Figure 10. KorMor Gas Field and Gas Active Pipeline. Source: Author, Based On “Kurdistan Region of Iraq” (2015).

3.7 Patriotic Union of Kurdistan and Kurdistan Democratic Party

The PUK and PDK have formed a government after the removal of Saddam Hussein from authority in Iraq. They became principal partners in governing. The Two big families in Kurdistan, the Barzani and Talabani families, have strongly influenced the energy sector in Kurdistan. Oil and gas is a symbol of Western interests and it is the lifeblood of Kurdistan’s regional government. The two families were ruling the region for almost three decades, and they consider oil and gas resources to be essential to their power. These resources have been a significant source of revenue for their parties. The KDP and PUK have each received about \$4 million from KRG. The KDP’s control over

the oil portfolio has been extremely important in increasing its powers versus the rival PUK. The KDP has also been able to slow down the development of hydrocarbon resources in the Southern KRI versus those in its northern heartlands.

At the same time, there has been dispute a concerning sharing money. Some members of the Patrice Union Party and Gorran claim that 80% of the Kurdistan gas lies in the area of their influence and known as a green area such as Galib as member of Goren opposing party (Mohammed 2016). Other member responded to these allegations, claiming that about 68% of budgets from oil and gas came from PDK yellow areas (Mansurbeg 2016). This conflict between them is yet another factor that has kept the sector undeveloped.

It remains to be seen how the recent acquisition of oil fields in the PUK-dominated Kirkuk, affects the balance of power between the three major parties (KDP, PUK, and Gorran). The two Kurdish parties have their own companies that have a role in controlling most of the vital economic sectors and are collecting special revenues in the oil and gas sector. The two important are the KAR Group and Qaiwan Company which are active in oil development and refining and also to distribution of PLG gas. Although it creates openings for ‘crony capitalism’ and patronage politics, the development of local private oil sector capabilities can help satisfy nationalist demands while avoiding the consequences of a monopoly state company.

The Barzani family has ties with America and Turkey, but the Talabani family by virtue of the geographical proximity of the region their influence from Iran has a strong relationship with Tehran. In the latest incident of the Kirkuk attack by the Iraqi army ,

there was coordination with members of the Patriotic Union of Kurdistan against the forces of Barzani (“PM Abadi Meets with Bafel Talabani, Eldest Son of PUK Founder” 2018). The Kurdistan Democratic Party is also close to the Turkish Justice Party headed by Recep Erdogan. At the same time the National Union Party is growing a relationship of the PKK opposed to Turkey. The Justice Party has a long lasting impact on the development of the economic relations of Kurdistan with Ankara in particular in the field of energy. In fact, in the last ten years energy is the key to mutual relations between the Kurdish and Turkish sides (Jozel 2014).

In Kurdistan elites are accustomed to generating energy policy and forming corporate frameworks in the interest of the single-party platform. In Kurdistan the PDK main party goals are greatly intertwined with energy policy and relations with energy firms. The problem with this system is that political party objectives and those of the energy sectors do not often match. This could lead to internal elitist strife or societal unrest. When the elites are in conflict, the side with the privilege of “legitimate violence” of intent in the form of access to the military usually prevails (Luckham 2017). KRG politics and oil and gas policy are known for being among the least transparent in the region. Despite the abundance of gas and oil, with exports of oil near 600 thousand barrels per day, government employees receive their salaries about every 45 days at half the rate they are owed. The political system in Kurdistan is a clannish system. Talabani family and Barzani family gather around them relatives and people from their clan. And the energy policy in Kurdistan is affected by Barzani family more than Talabani. Barzani considers energy the key to obtaining the final independence of Kurdistan as an

independent state. For example one of interviewees claims Barzani's nephew and his little son Talabani is the supervisor of the oil revenues of a region with control over most of the commercial companies and banks, such as the Bank of Kurdistan, which saves money selling oil and gas (Hassan 2016). In addition, the sovereign wealth fund for the conservation of oil and gas has not been reformed to free it from interference despite a decision by the parliament to reform it, which would reduce cases of corruption and bureaucracy.

On the other hand, dramatic change took place when the two biggest party's headquarters in Sulaymaniyah signed agreements without ally party PDK. On May 17, 2016 the Patriotic Union of Kurdistan, or PUK, and the Change Movement, also known locally as Gorran, issued a statement saying they had signed an agreement that would see them unite their two blocs in the Iraqi Kurdish Parliament ("Political Union in Kurdistan – Peace, or Civil War? | Iraq Business News" 2016). There are even quarrels between the two parties and the opposition over the division of oil and gas revenues and their unequal distribution between their areas of influence, for example, some claim that most of the gas fields giant are located in the Sulaymaniyah area of influence of the Patriotic Union of Kurdistan and the opposition of private movement changed. Gorran opposition Party and a member of the government of Sulaymaniyah, said that the fields of Kurdamir, Topkhana, and Chia Surkh with Pulkhana located in Karamian 70% it means are located in a green range. This means that there is geographical injustice between the two regions (Mohammed 2016).

On the other hand, the PDK members disputed the allegation that 60% of oil and gas budget come from PDK strongholds. In the end, even within the KRI, the control of its hydrocarbon resources has strengthened the KDP versus the PUK, but both of the established parties have benefited from opportunities for patronage and corruption.

Kurdistan has a long history of disagreement between parties on how to manage resources. Iraqi Kurdistan two big parties divided by two side of influence Turkey and Iran. In the last dispute between Erbil and Baghdad the issue been display in very clear way which led PUK support and cooperate with Baghdad to regain the most the oil and gas fields in Kirkuk and Mosul. This altitude against PDK that scholars consider Barzani U.S and Turkish alley. For more details see area of influence two parties in Kurdistan and election results (Figure 11).

One interviewee said: “Also KRG have the internal power struggles between the two big parties, PUK and PDK. They are divided over gas policy relations with Iran, Turkey and Baghdad”(Wahab 2016)

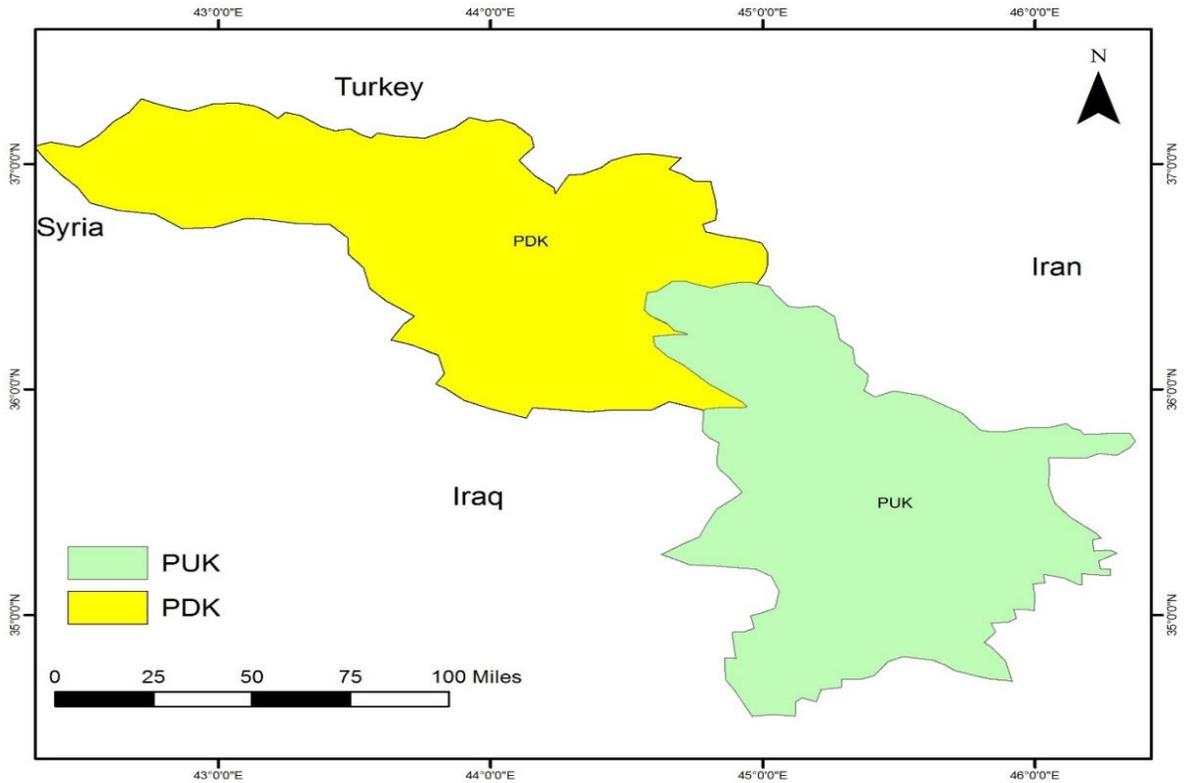


Figure 11. Top Two Party Voting Results in Kurdistan: 1992-2003. Source: Author.

Table 5. Kurdistan Political Party’s Election Result 2013. Source: “Independent High Electoral Commission of Iraq Announces Complete Election Results” (2013).

Party	Votes	seats
PDK	743,000	38
Goran	476,000	24
PUK	350,000	18
Kurdistan Islamic Union	186,000	10
Kurdistan Islamic group	118,000	6
Socialist	12,398	1
Azadi	12,200	1

3.8 Baghdad and Erbil Conflict on Petroleum Revenues Sharing

The main problem between Erbil and Baghdad is the interpretation of the Iraqi Constitution about oil and gas agreements with international companies. Iraqi authority claims that articles 110,112 and 115 of constitution emphasize the power of the central governed in Baghdad. The KRG interprets Article 111, that oil and gas belong to all Iraqis, and the Article 112 (that suggests Iraq come up with a way to share revenues) to mean that it only owes Baghdad a portion of the oil it produces (Schenke 2011). The central government in Baghdad claims that it has the right to full sovereignty to develop fields throughout Iraq, including Kurdistan, which conforms to the Constitution and to strengthen the sovereignty of all powers to preserve the unity of the country.

On the other hand, as a semi-autonomous region, Kurdistan has passed hydrocarbon law in local parliament allowing it to launch a domestic energy sector and generate gas and oil revenues. KRG has a different a view believing that KRG has all rights to explore, export and develop gas and oil in the Kurdistan autonomous region as long as it shares the petroleum revenues with federal government in Baghdad. The KRG has signed more than 40 PSAs without seeking approval from Baghdad (“Iraq and the Kurds: The High-Stakes Hydrocarbons Gambit” 2012). In the meanwhile, Kurdish government takes 17% of Iraq’s national budget, which makes the majority of KRG budget but right now the central government cut the budget of KRG. Most budget of the Kurdistan government comes from selling oil but deciding how to share revenues has placed many obstacles in front of developing natural gas for KRG more than Baghdad.

The dispute between the two governments is over money and land, but the heart of the matter is that Kurdistan wants independence from the central government in full, but the central government wants to exercise full sovereignty in the state. Krasner (1999) differentiates between four meanings of sovereignty: domestic sovereignty, interdependence sovereignty, international legal sovereignty, and Westphalia sovereignty. The Kurdistan region after 1992, has been exercising internal sovereignty but still does not they have right to deal international treaties. Likewise, it cannot borrow money to develop its natural gas project. However, the Kurdistan region is determined to keep its acquired partial sovereignty as a part of its quest to justify its near-independent status. For that purpose, the region relies on its internal sovereignty and ability to act independently even when lacking international recognition. On the other hand, the governments of Kurdistan acts similarly to a sovereign state, for example, through its ability to sell oil and gas independently, sending its troops during the Syrian war to the city of Kobani -Syrian to liberation from ISIS. Additional, the existing of representatives and consulates of the superpowers in Kurdistan, this all indicates that Kurdistan has the large and important role in the Middle East. Also, there are attempts by the government of Kurdistan to show self and to gain more local sovereignty, including the launch of free press, market freedom and legislation in parliament to guarantee and preserve the rights of minorities and the right of women.

3.9 Interview Analysis

Interviewee explained more about KRG gas policy:

For example, the government signed a 20-year gas purchase contract and paid \$1,000 for each 1000 cubic feet of gas, but most companies do not trust a provincial government because it does not have enough money to develop gas. But if Turkey is willing to pay \$ 10 for each meter of gas and KRG paid \$ 7 for each meter, then KRG could during this time support its gas sector. All the energy companies make money from oil not gas. For instant, transporting from Miran gas field to Turkish border requires 4 hundred billion dollars to establish pipeline (Saad 2016).

Most respondents interviewed about KRG gas policy said the policy not been managed perfectly. One of the interviewee worried that, “the Minister of Natural Resources has failed to deal with companies that are already invested in the gas sector. Recently, Dana Gas Company won 2 billion dollars from KRG is a lawsuit in the London Court of International Arbitration.”

Another interviewee said, “It’s a completely failed plan. The best evidence is our production is not developed. We lost 2 million dollars to Dana gas and we are still in other court cases” (Hama 2016).

Many interviewees blame the current Ministry of Natural Resources for the unsuccessful development of the gas sector. Most agreed that Kurdistan gas policy has not been active and the Minister of Natural Resource should take most of the responsibility for the failed policy. Interviewees also blame the current Ministry of Natural Resources for not taking advantage of gas resources even for generation of domestic electricity for two power station in Erbil and Sulaymaniyah. One interviewee detailed:

Nobody knows about the detail of gas agreements between Kurdistan and Turkey and others; just the ministry of Kurdistan Natural Resources knows (Ashty Hawrami) and the ministry hides it from parliament audit (Hama 2016).

Some interviewees suggested that poor infrastructure of petroleum impacts on the performance of Kurdistan's gas sector. Hama (2016) elaborated more:

The gas industry in the region suffers from a poorly planned strategy. Many things remain unestablished after Kurdistan's oil and gas law have been approved in Kurdistan parliament since 2007. For example, there is still no Audit Committee of oil and gas imports.

3.10 Summary of Issues

Traditional geographic elements such as location are obstructing KRG from using natural gas exports to further its ambition to uphold its sovereignty over the region's natural gas and oil. However, the tension between Erbil and Baghdad threatens progress of development Kurdish gas sector for natural gas progress in Kurdistan. Many companies are afraid of the unstable relationship between KRG and Baghdad on the contracts.

Other obstacles between KRG and international energy companies is conflict over revenues from contracts and late payments to companies. From Baghdad's perspective, this is an important sovereign right, surely not to be reliable to a larger and more powerful national and sectarian challenger to the Kurdistan. The Iraqi central government has so far relied on threats to blacklist foreign firms that unilaterally sign energy exploration and production deals with the Kurdistan Regional Government from energy development in the south ("A Looming Showdown Over Iraqi Kurdish Oil Exports" 2013). Before 2003 U.S and Turkey wanted Iraq as cohesive a state but now this attempt

is unlikely because Kurdistan as a de facto region KRG already sell its oil without Baghdad approval. This means the international community came to believe that KRG is a political and economic entity in Middle East should have recognition.

Furthermore, KRG and Baghdad are still working together in some way. In February 2017 an agreement saw 40,000 barrel output per day (bopd) of NOC crude transported to KAR's refineries West of Erbil, generating fuel for Mosul and liberated areas to offset the losses of the Baiji and Qayyarah refineries ("A Focused Business" 2016). Iraqi Prime Minister Nouri Al-Maliki wrote a letter to U.S. President Obama asking him to stop ExxonMobil from dealing with the KRG. The Obama administration advised companies about the legal and stability risks involved in dealing with KRG without Baghdad's approval. In addition, the relationship between Baghdad and Erbil is crucial to both. However, despite this friendship with Turkey and European countries, Erbil cannot turn its back on Baghdad. Kurdistan was compelled to make ties with Baghdad to export future gas and oil to Asian market.

3.11 Gas Fields and Disputed Territories (Kirkuk-Mosul)

The disputed territories are those between Kurdistan Region and Iraq over which the terms of territorial control are not agreed upon by KRG and Iraqi central government. Different religious and ethnic groups live in these territories, but Kurds constitute a majority in most of the disputed areas. In early 16 October 2017, Iraqi forces and Popular Mobilization Forces backed by Iran re-took oil and gas fields in disputed territory from the Kurdistan Regional Government. But Rosneft Company will push ahead with plans to drill for gas and oil in Kurdistan despite rising instability in the autonomous region. KRG

oil produce with Kirkuk disputed area around 550,000 but without Kirkuk it will be 235,000 (Ajrash and Dipaola 2017). Production dropped at least half after October 17, 2017 to below 250,000 b/d. The major sticking point for Kurds and Arabs vis-à-vis Kurdish sovereignty is the Kirkuk and Mosul problem. The Iraqi government and the KRG are in disagreement as to where the exact provincial boundaries are. The problem is with enclaves of Kurd and Arab families who do not desire to be governed by other ethnicity. For example, Turkish assume that Kirkuk is home to a sizable Turkmen population and the expansion of Kurdish control over the city had been an important red line for Turkish foreign policy because it is rich in resources and Turkey wants to maintain leverage there. Turkey does not want resources going to Iran instead. Breaking the red line would mean Turkey would not cooperate with the KRG in many fronts. The Kurdistan government region after 2003 administratively has powers in Kurdish territories in cities and towns in Diyala, Mosul and Kirkuk. During the period of the Baathist regime, Baathists persecuted Kurds from taking advantages of oil and gas in the territories near Kirkuk and Mosul.

Currently the dispute over those areas between KRG and central Government make the relationship between them more complicated especially such as to who will manage these oil and gas fields and also on delineation on border. Historically, those areas are very oil and gas rich. The two big oil and gas fields are Avana and Baba Gurgur. Before 2003 they were run by Baghdad but after ISIS assaults in 2014 KRG took control over the two fields. The rights of extracting gas and oil in the disputed areas has been another problem between the government of Kurdistan and Baghdad. The conflicts

over disputed areas between KRG and Baghdad paved the way to involve many foreign influences over the progress of the petroleum industry. For example, Turkey has been using Kirkuk's Turkoman as its main vehicle of leverage to make sure Kirkuk stays outside Kurdish control ("Fight or Flight: The Desperate Plight of Iraq's 'Generation 2000'" 2016). The crisis between Baghdad and Erbil intensified this time when Baghdad signed a contract with a British oil exploration and extraction company in the disputed Kirkuk region. On the other hand, the government of Kurdistan has offered more concessions to US companies and its associates in this sector, including the company, ExxonMobil. But in the Constitution and Article 140, both governments have no right to extract until they reach full normalization in this region.

Those issues have a significant impact on how and when Iraq and KRG will develop its natural gas resources. The tensions between Peshmerga forces and the Iraqi army around Kirkuk have been increasing. Because the main oil and gas pipeline go through this area also known as (Kirkuk-Yumurtalık) the pipeline has been targeted by terrorist groups to hit income stream to Baghdad and Erbil. The Kurdistan Regional Government took advantage of the war on ISIS, calling for the control of more land in the disputed area and the last control of the fields of Ain Zalah and Ain Sfni in the borders of the province of Nineveh (Khncy 2016). Beside, most of KRG's proven oil and gas reserves is located in the South part of the dispute area such as KorMor gas, Bai Hassan others fields.

Conversely, Kurdistan's neighbors don't want KRG to control all disputed areas like Kirkuk. As Turkish officials see it, full Kurdish control over Kirkuk and its oil would

be an important step toward Kurdish independence, an outcome they wish to avoid at all cost (Hiltermann and Fantappie 2008). The disputed territories can be part of Kurdistan Region or part of Iraq since it is agreed by both sides according to article 140 in Iraqi constitution, up to day. The status of the disputed territories remained the same until the dawn 'Islamic State of Iraq and the Levant, ISIS' in June 2014 because the conflict is over land, sovereignty, and control over resources. Peshmerga army re-gained from primary defeat to repel Daesh and catch many areas of the disputed territories which were before controlled by the Iraqi central government. Daesh created an opportunity for Kurdistan Region to extend behind its March 2003 border. "Kurds have increased the size of the region they control in Iraq by around 40% since 2014," and control over these disputed must be resolve in the future (Coles and Kalin 2016). Kurds are now a de facto power in much of the disputed territories.

3.11.1 Interviews Analysis:

The results show that multiple issues confront the gas sector including: Internal geopolitical issues between KRG and Iraqi central government on many things. First, constitutionally there are points of disagreement between the KRG and Iraqi central government, especially Articles 111 and 112 ("Iraq Constitution" 2005).

To investigate questions surrounding constitutional politics of energy my interview targeted the Kurdistan and Iraqi gas and oil committee member in Parliament and also scholars active in this sector. Second, most interviewees agree that the dispute between Erbil and Baghdad is do developing gas sector in Kurdistan are such each side sign contracts individually with different type of agreements. Kurdistan contracts differ

from Baghdad's. Kurdistan signs sharing contracts with companies and Baghdad sign service contracts. Concerning the interpretation of the Iraqi constitutions, especially Articles 111,112 related to Iraq's hydrocarbon sector, Interviewee (Abdulla 2016) explained

All revenues should be distributed to all Iraq people. Revenues from Duhok or other places should be allocated based on the population in each province. There are political problems between KRG and the Iraqi government that related to the constitution of new Iraq. Article 112 of the Iraqi constitution gives provinces the right to manage natural resources and the revenues generated from production, by law. But there is no legislation to arrange for that article. This is why the Iraqi government and KRG interpret the article in their respective ways. This means the problem is political and legal.

Dispute over control of lands between Baghdad and Erbil is another challenge affecting energy policy. In many cases resource nationalism has been a leading cause of conflict among the people in oil and gas rich areas. Natali (2015) argues that Kurdistan region is not a sovereign entity and conflict over resources among Iraqi people may create a long time civil war. One interviewee said, "KRG does not have external sovereignty but they have some internal sovereignty. The KRG lacks support from the Iraqi central government."

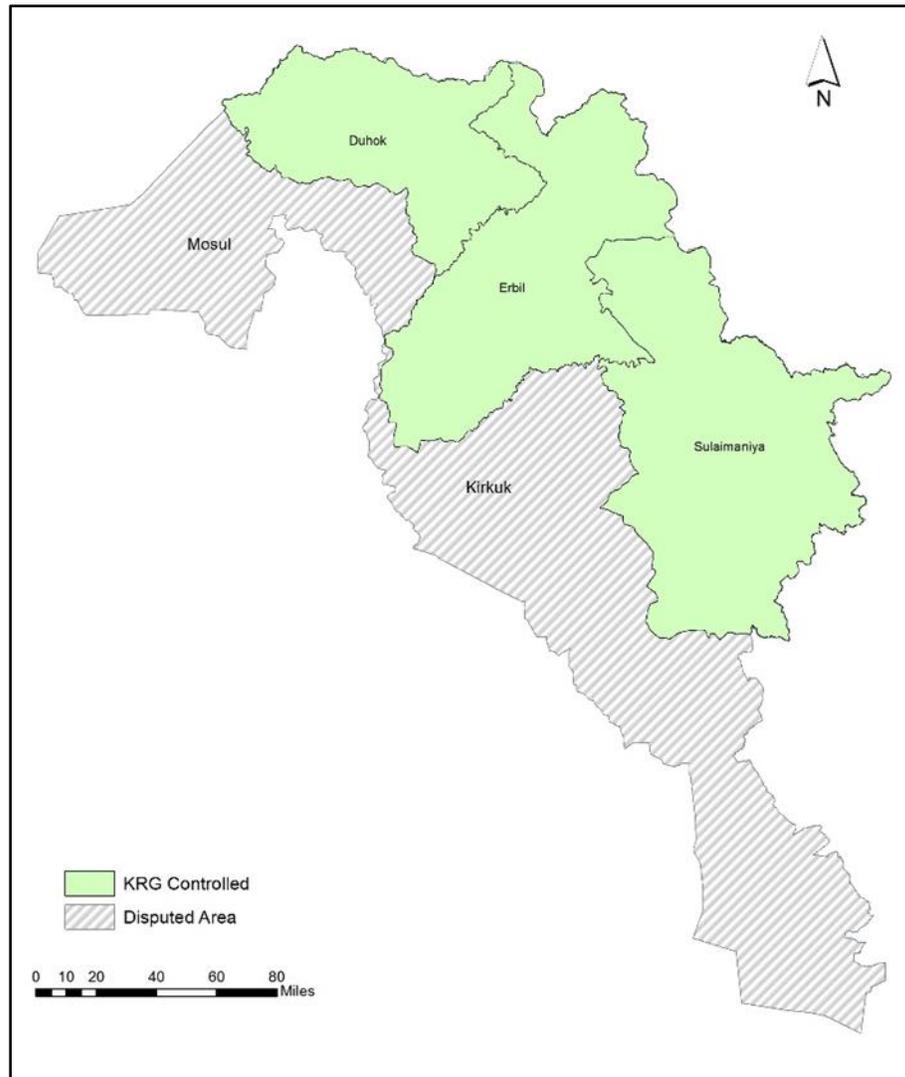


Figure 12. Disputed Areas between Federal Government and KRG. Source: Author, based on “In Kirkuk, the Next Phase of Iraq’s Conflict Begins” (2017).

3.12. Iraq

Iraq is the world’s third largest oil exporter, after Saudi Arabia and Russia, and could overtake Russia’s position by 2030. By the year 2035, Iraq is projected to become the largest contributor to global growth of oil supply (“Iraq Energy Outlook” 2012).

Iraq’s proven reserves of conventional natural gas amount to 3.4 trillion cubic meters

(tcm), or about 1.5% of the world total placing Iraq 13th among global reserve-holders (“Iraq Energy Outlook” 2012). This means that almost 40% of the resources have yet to be found are expected to be in non-associated gas fields. In January 2013, Iraq’s gas production reached 2.234 bcf/day (Al-Khatteeb 2013). The cost of oil production in Iraq is among the lowest—in 2008, extraction costs per barrel averaged at \$1.8 in Saudi Arabia and \$31.4 in Canada (Petroff 2015). The cost of Iraq’s oil production is lower than in Angola, Norway and the United States, and much lower than offshore oilfields. In comparison, the huge reserve natural gas in south is as appraisal in 2-3 trillion cubic meters of gas, which makes about more than 75% of all gas reserve in Iraq.

In terms of infrastructure, Iraq has one extended gas pipeline from Basra to Mosul. The oil pipeline is 1775 km and LPG pipeline is 1400 km. That is not sufficient to secure and develop Iraq’s gas potential. Like Kurdistan, they lack sufficient storage facilities and infrastructure. At present, Iraq has no underground gas storage: a facility built in the 1980s in the Kirkuk region for LPG, which held a surplus during summer months for retrieval during periods of peak demand in the winter, is no longer in use. The gas pipeline capacity 20 bcm/y BOTAS begun construction to interconnect 185-km with grid at Mardin to Kurdistan border may use it by central government in Baghdad. The Iraq - Turkey Crude Oil Pipeline system consists of two parallel 986 km-long pipelines built in 1973 and 1987 (Bowlus 2017).

These pipelines transport Iraqi crude oil to the Ceyhan (Yumurtalık) Marine Terminal with a total annual capacity of 70.9 Million tons/year as of 1987 (Austivk and Rzayeva 2016). The tension relations with KRG make Iraqi petroleum not progress, for

instant, Iraqi government retaliated against the first independence oil sales in 2014 for certain will they do the same for sell and exporting natural gas Kurdistan.

One solution to the problem between both may as alternative for the KRG would be to export gas to federal Iraq. Based on its geographic proximity, especially to the southern part of the KRI, and its high-priced gas import deal with Iran, federal Iraq could potentially be a more lucrative market. Otherwise, the KRG could step up its domestic power generation and export electricity to federal Iraq (which suffers from severe shortages) and/or Turkey. Baghdad's has only option which is Kurdistan for exporting Kirkuk crude was to use the connection to the KRG's new pipeline. Because the Kurdish Peshmerga forces had taken physical control of most of the Iraqi fields around Kirkuk to deny them to ISIS.

Periods of cooperation with Baghdad have been interrupted by serious disputes and breakdowns of relations. That push the KRG to find the new energy partner which is Turkey, Kurdistan in 2014, exported oil for the first time through Turkish port of Ceyhan and a Turkish state-owned bank processed the transactions, these actions by KRG made Iraq government upset and directly cutting all payments to the Kurdistan region led the dispute between KRG and Baghdad to dangers stages. Furthers, but huge gas reserves of Kurdistan Region of country justifies Kurdistan is important more than Iraq for energy starving countries, outstandingly for Turkey and the EU.

On the other hand, the main challenges to develop of Iraq petroleum industry are often from the Saddam Hussein era and the few years after the fall of Saddam. The problems are including geography like vulnerability of pipelines, oil price and terrorism

such as ISIS and other threats of corruption and economic mismanagement. The particular challenges and how governments have addressed them if at all.

However, KRG may be unable to export gas via Iraq because of the 50 years agreement between Turkey and KRG. North and Middle Iraq, like Salahddin and Mosul, is best market for Kurdistan gas because all of Iraq's gas is in South and the North and Middle is undeveloped for gas because of security issues. KRG should look where the best gas market is even find in Baghdad. More than 70 percent of gas production in 2013 was flared due to a lack of sufficient infrastructure to utilize it for consumption. According to South Gas Company Director, "Basrah produces only around 1 billion cubic feet a day of associated gas and some 700 million cubic feet are being flared, which is wasting millions of dollars of the country's resources every day"(Shell Global 2013).

One interviewee, (Wahab 2016) claims KRG should cooperate with Iraqi central government to access international markets to sell its natural gas, because Iraq has control of an outlet to the Persian gulf, "Iraqi Kurdistan Region needs cooperation with Baghdad to access world markets through Basra port in South Iraq and so to secure the development of the gas industry through more investment in this sector (Wahab 2016)".

3.13 Summary

Interview data suggests that internal political challenge are a major factor inhibiting Kurdistan's gas development. First, Kurdistan's dispute with Dana Gas Company, which is the only company invested in Kurdistan gas sector, is a major roadblock. The main dispute between KRG and Dana Gas on the details of contracts which is consider a big issue in front of KRG to increase the gas produce and fill they

needed. Second, the Iraq Constitution interpretation of article 11,112 is the center of many issues that affected this sector. Disputes over the management the oil and gas sector and over revenue sharing have been seen as a battle for sovereignty between Iraq and KRG. Third, Kurdistan's landlocked geography is another issue with KRG depending on Turkey's or Iran's infrastructure for developing export markets, or in the future even potentially Syria's. Overall, interviewees agreed that the gas sector will be essential to the sustainable development of the Kurdistan region's economy in the future. But all the have the same feel that poor governance of the gas industry is a major factor inhibiting that development.

CHAPTER IV

GEOPOLITICS OF NATURAL GAS

4.1. Introduction

Since the Kurdistan government has begun to act as an independent actor in selling its oil and gas independent, these sectors have received substantial political and economic attention. The region's estimated 708 billion cubic meters of proven gas reserves and 2.8–5.6 trillion cubic meters (unproven) of natural gas (Auzer 2016) are attractive for investors as well as countries seeking to diversify supplies and/or satisfy demand. In fact, if Kurdistan were an independent country, it would rank among the 10 richest countries in terms of oil and gas reserves (Pflüger and Duero 2011). The Kurdistan Region has a reserve of 5.7 trillion cubic meters of natural gas which makes between 1.5% and 3% of the world's reserve (Goran 2017). In case Kurdistan were to declare independence from Iraq, the dynamics of oil and gas production in the region would change quite dramatically. For example, Iraq would move from being the second largest OPEC producer of oil to third, replaced by Iran. According to statistics of production and reserves of oil and gas in Kurdistan, the region possesses more resources than five members of OPEC (Rascouet and AL Ansary 2017). The region has gone through several phases of exploration since the first well was drilled in 1901 in the Chia Surkh area, which was also the first well ever drilled in the Middle East (Mackertich and Samarrai 2015). Weakened by intra-party splits and corruption, the region's institutions

have become vulnerable to external interference. Turkey and Iran both have security and intelligence operatives active in the region and have a long history of meddling in Kurdish affairs. The United States of America, Russia, Turkey and Iran are trying in every way to establish a foothold in the region. The key players and actors shaping and influencing Kurdistan's natural gas policy are energy firms, the region's governments, and other powerful state actors, such as neighboring countries. The roles of Turkey, Iran, and Russia in influencing the Kurdish gas policy are explained in this chapter. It answers the question of how these key actors affect the natural gas industry in Kurdistan. KRG is a non-state actor but it would like to increase its sovereignty by using its authority over the local hydrocarbon sector. Without sovereignty international actors will not cooperate without permission of central government in Baghdad.

As this chapter shows, the fact that KRG lacks internationally recognized sovereignty makes it difficult for KRG to attract investment from international organizations to develop natural gas sector.

The aim of this chapter is to explore how the energy policies of states beyond Iraq affect Kurdistan's own energy policy. The influence of powerful neighboring states like Turkey, Iran, Russia and European Union are specifically considered. Understanding the role of outside states is crucial if scholars and KRG are to frame meaningful and long term policy initiatives. In this chapter I will answer the following research question: What is the potential role of Kurdistan's natural gas supplies in the energy supply diversification of Turkey and Europe?

4.2 The Geopolitical of Kurdistan's Natural Gas and Actors

Geopolitics, as the expression of relationships among foreign policy, political power and the physical environment, has been considered to be a useful framework through which to examine energy security and policy making, particularly in thinking about how the location of energy resources and transportation issues impact interested states' foreign policies (Agnew 2016). Most of the conventional scholarship on energy and geopolitics focuses on energy supply and energy security. Quantity and location of energy resources, more often than not, are viewed in geographically deterministic terms. A focus on geographical limits makes competition for energy resources, particularly oil, about competition for the control of geographies in which it is located or through which it is transported to consumers. While such an approach remains important among policymakers as well as some experts in the field of geopolitics, in the new era the definition of geopolitics has evolved to include such things as how states exert economic and political influence over a place in the context of the global economy.

Understanding the geopolitics of gas is crucial to know what is going on the global market. And also know the present, past and future of the demand and supply. Mackinder demonstrated the close link between geopolitics and energy with his renowned Heartland theory, in which he argued that control over energy export routes of the Heartland helped to determine power over territory (Mackinder 1919).

The geographic position of Kurdistan combined with its substantial energy resources gives it a significant role in the geopolitics of the Middle East. The clearest evidence of this comes in the attention paid to Kurdistan by large countries, for example

in the form of 42 consulate offices opened in Erbil by China, UK, German, Russia, India and others.

Natural gas is one of the most important strategic industrial component due to its impact on economic development, growth, and imports. There are many gas pipeline plans in the Middle East and South Caucasus. Each plan has numerous political challenges and obstacles that may postpone progress on the projects. In 2011, gas demand in the Middle East and North Africa (MENA) grew faster than in any other region in the world. It increased by almost 9 percent year on- year, reaching just under 490 bcm (Darbouche 2012).

Kurdistan today is essential to many proposals of natural gas pipelines in Middle East. Geopolitically, exporting Kurdistan natural gas would be in the interest of Turkey, Iraq, and Europe. developing Kurdistan natural gas could be beneficial for all the countries above but before this can happen there would need to be careful consideration of the corridors for exporting the gas. Knowing this the powerful energy actors in the region, such as Russia, Turkey, and Iraq, play a large role in influencing the development of Kurdish. The neighboring countries of Kurdistan can use various means, including price means, and the use of armed groups to threaten the stability of Kurdistan and to prevent Kurdistan from developing its gas sector. However, KRG looking forward by signed agreements with Turkey 50 years to export their gas and oil to Turkey and surplus to European countries.

KRG hopes Kurdistan will be a source of gas for Europe via Anatolian pipeline, but domestic natural gas needs and political disputes between Erbil and Baghdad have

dimmed those prospects. Given the complicated geopolitical situation of energy in the Middle East and South Caucasus, Kurdistan must balance its own interests with those of the powerful actors and suppliers of gas such as Turkey, Russia, Iran, and Iraq. If the government wants to develop a gas sector, it must participate in the global energy map with new projects from pipelines to transport gas from the region to the European and Asian markets such as the southern energy corridor. Over forty one companies are now investing in oil and gas fields in Kurdistan, and KRG has signed thirty seven contracts (Akreyi 2017). In 2011, the KRG offered medium companies and the five largest multinational energy companies incentives to come to Kurdistan to explore and invest in the petroleum sector. The presence of giant energy companies in Kurdistan such as ExxonMobil and Gazprom strengthens the argument of those in Kurdistan and abroad that do not want the independence Kurdistan. Geopolitical competition is occurring through pipelines projects in the area. Outside states aid pipeline projects for geostrategic reasons. At the current time, Kurdistan is at the mercy of the Turkish demands and the Kurdistan government must follow the political and economic positions of Turkey because the only port currently for the export of oil and gas of relevance to Kurdistan is in Turkey. Iran does not need Kurdistan's gas and therefore is less interested in Kurdish gas development.

4.3 Russia and Turkey's Energy Relationship with Kurdistan

The relationship between Russia and Turkey during the Syria civil war has changed dramatically. Turkey is as significant importer of Russia natural gas. Russia supplies about 53% of Turkey's natural gas (Rzayeva 2018). Between them there are

many projects underway in the energy sector, including the “Turkish Stream” that carry out natural gas from Russia to Europe through Turkey.

European countries want Turkey to be the hub for transporting gas from gas-rich countries of the Caspian Region such as Azerbaijan to Europe in order to increase supply diversity away from the dominance of Russia, which has controlled European markets for a long time. Turkey’s relationship with Russia around gas imports is part of a larger strategic relationship in which Turkey wishes to maintain leverage in order to maintain influence over Russia in the Syria crisis. Russia currently supplies Turkey with between 60-70 % of its natural gas, and it charges high prices for it. Unsurprisingly, Russia’s own strategic calculation involves wanting to make sure this amount of gas export to Turkey does not change any time soon.

Relations between Turkey and Russia have a major influence Kurdistan natural gas. Two big countries may agree to export 30 million cubic meters of Kurdish gas per year to Turkey in the future, but Russia wants to avoid a situation in which Kurdish gas surpasses Turkish demand and the oversupply is then exported to Europe. Russia would prefer to change Kurdistan transport path from Mediterranean Sea to Black sea according to Russia Ministry of energy (Ali 2017). It means Russia wants Kurdish gas to be used in local markets in Turkey and not exported to Europe because it will compete with Russia gas in the European market. Even though Kurdistan does have enough gas currently to send to Europe if Russia oversees the Kurdistan gas it may not allow exportation. For his part, Russia's special presidential representative to the Middle East, Alexander Sultanov, played down the impact of supplies from Iraqi Kurdistan and highlighted the

attractiveness of Russian gas supplies to Europe in the future (“The gas of Iraqi Kurdistan plays an important role in the Nabucco project” 2009). This may have been politically motivated because Russia views Kurdish gas in Europe as strategic threat.

Turkey and Europe are the biggest export markets for Russian gas. Russia does not want new competitors of its market to appear in Europe. In fact, 80 percent of the gas that Russian state-controlled company Gazprom produces is sold to Europe, so maintaining this crucial market is very important (Chang 2015).

Against this backdrop, it is interesting to witness how Mackinder’s theory has been resurrected by some political scientists in Russia such as Dugin, who wishes to revive the country’s historical dominant role in the region. By repairing Eurasianist thinking, these political scientists suggest that cultural and transportation integration will foster voluntary economic associations in the region. Recent visits to Erbil by Dugin are indicative of Russia’s efforts to exercise more influence over Kurdistan, especially by explicitly emphasizing the importance of Eurasia as a concept for Kurdistan’s bid for economic and political independence (“Russian Political Scientist Aleksandr Dugin on Kurdish Identity” 2017).

Russian energy policy is the latest attempt to extend its influence in Kurdistan. Russian company Rosneft signed a B.O.O.T. (build, own, operate, and transfer) contract with Kurdistan for 20 years. It includes the processes of gas discovery and export of the Kurdish oil to its refinery in Germany and \$ 1 million in advance for the Kurdistan government. This is part of a broader geopolitical strategy by Russia as shown by it paying a high premium to Turkmenistan just so that it will not export gas to Europe

(Rahim 2016). The last Russian attempts to influence the energy policy in Kurdistan involve the signing of an agreement between the KRG and the company Rosneft on the sidelines of the meetings of the Petersburg International Economic Forum. Rosneft and Kurdish Natural Resources ministry sign long-term contract (20) years on oil and gas for on widening their cooperation in exploration and production of hydrocarbons, commerce and logistics. The new agreements will allow talking about full entry of the company in one of the most promising regions of the developing global energy market with the expected recoverable reserves in the order of 45 billion bbl of oil and 5.66 trillion m³ of gas (“Rosneft and Iraqi Kurdistan Government Agree to Expand Strategic Cooperation” 2017). But the agreement faced much criticism by the opposition party because it did not go through to the institutions of the Parliament of Kurdistan. Half of Rosneft Company belongs to the Russian government, which could mean the Russian government will have significant leverage over oil and gas sector in the Kurdistan in the future. However, the agreements between Rosneft and KRG have many positive aspects as well, such as job creation opportunities for people in Kurdistan, and political support for KRG in its dispute with Baghdad. Also, it will be the first time KRG will sell its oil to a company directly rather than the commercial man in market.

Rosneft and KRG are planning to launch a pipeline to export gas to Turkey and Europe by 2020 expected to ensure gas exports of 30 billion cubic meters annually in addition to supplies to major domestic consumers and surplus to Turkey and Europe (Zhdannikov 2017b). That means Kurdistan will have ability to provide energy to Turkey. According to Rosneft it wants to help Kurdistan supply export markets with 6

percent of European total gas demand and one-sixth of current gas export volumes by Russia (Zhdannikov 2017b).

Kurdistan's main challenge is to find more options to export its gas if not to Turkey. Russia has increased support for PYD and YPG which are Kurdish parties in Syria. With increased Russian backing for PYD and YPG, it is safe to assume that Moscow will enable and facilitate the Kurds' access to the Mediterranean. In that scenario, the Kurds need not acquire a coastal territory to access Latakia port; rather, Moscow can offer this access either through its own base in Latakia, or through facilitating a deal between Damascus and PYD. Syrian Kurds' access to the Mediterranean will inevitably draw a wedge between KRG and Turkey in terms of exporting oil and gas.

As mentioned above Russia's relationship with Kurdistan has primarily been via FDI. Recently Russia has become involved in Kurdistan's energy sector through its two biggest energy companies, Rosneft and Gazprom. But the competition between two companies on Kurdistan's gas project will ensure that Russia is able to control one of the important potential sources of gas to Turkey and southeastern Europe. Russia appears to be targeting Kurdistan's gas industry not to develop the resource but rather to control it so that it does not pose serious competition in Russia's own export markets (Mills 2018a). During the interview process a few interviewees mentioned the role of Russia in Kurdistan's gas sector. One interviewee, Rahim, an energy expert said:

Russia used all tactics and strategies to manipulate natural gas production in the world. For example Russia pays double the price to Turkmenistan to kill any commercial incentive of exporting gas to Europe. Russia is watching Kurdistan

gas closely and Russia could follow any of these strategies in the Kurdistan region. Russia would not allow Kurdistan to threaten its gas monopoly in Turkish and European markets (Rahim 2016).

In summary, KRG should not use its natural gas as a political tool in the market.

The conflict between Russia, Turkey and European Union over gas is serious. KRG should not get involved in natural gas competition, especially with export countries such as Iran and Russia. In reality, based on the capability of KRG to develop its natural gas resources, they can compete with Russian gas in many aspects, the main one being the region's favorable geographical location and generally positive relations with other countries. Thus the best option for Kurdistan is to treat gas as a commercial good that can be used for economic development, not as a political good that can be used to benefit the region's political standing in the Middle East and beyond. Russia supplies Europe and Turkey about 75-90% of gas. In 2015, Russia exported 180 bcm to Europe. KRG must try to diversify the routes to export gas to countries in Asia like India, Pakistan and China, and other markets where Russia and Iran do not have a large presence. If KRG can present itself not as a competitor to those major exporters but rather as a producer that can supplement short supplies, it could strengthen its economy and become a more significant player in the increasingly global natural gas market.

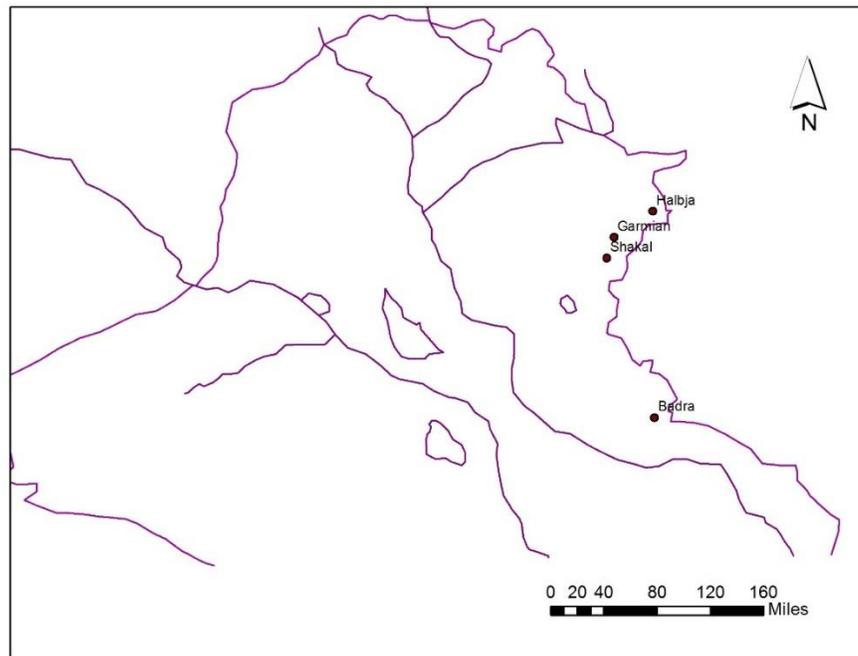


Figure 13. Gazprom Blocks in Iraq-Kurdistan. Source: “Iraq” (2018)

4.4 Turkey

Turkey is gradually becoming an important natural gas and energy country, and is advantageously located as a transit country for oil and natural gas between suppliers in the Middle East such as Kurdistan, Iran, Russia, and consumers in the EU. With a rapidly growing economy and a population of 80 million people, Turkey has been one of the fastest growing energy consumers in the world (Austivk and Rzayeva 2017b). Located strategically between two continents, Turkey is also an important oil and gas transit destination. According to estimates from state-owned BOTAŞ (Boru Hatları ile Petrol Taşıma A.Ş. BOTAŞ), demand for natural gas is projected to increase on average by 2.3 percent/year from 2014 till 2030 implying that demand will grow from some 48 bcm in

2015 to 70 bcm by 2030, down from 80 bcm estimated by BOTAŞ in 2012 (Austivk and Rzayeva 2016).

The relationship between Turkey and Kurdistan has developed in recent years. Turkey offers Kurdistan to access to be a pipeline that allows KRG to export more than 600,000 barrels of crude oil per day. KRG could partially meet Turkey's natural gas needs in the next few years and use the rest in domestic markets. Turkey's own supplies of natural gas are mostly found in the eastern part of the country, in areas inhabited by Kurds, while most demand is in the more populated Western part of the country. There may be significant shale oil and gas reserves under the Aegean Sea, the Black Sea and in the Dadas shale in the South East of Turkey in Diyarbakir Province ("Turkey and the Geopolitics of Natural Gas'-Gulmira Rzayeva" 2017). In general the many gas pipelines through Turkey will play a crucial role for Turkey both in covering its own demand and becoming a transit hub (Emre and Kayaoglu 2016). Kurdistan's gas would be the least expensive alternative for imports to Turkey. Tony Hayward, former head of Genel Energy and former executive director of BP, a company operating in the KRG, stated in a conference in November that the region has 5 trillion cubic meters of natural gas reserves - enough to meet Turkey's needs for 50 years (Lee 2015).

The two huge gas fields in Kurdistan are Miran and Bina Bawi fields'. The potential gas in the two fields around 8.4 trillion cubic feet (Genel Energy 2017). Turkey's Genel Energy Company has signed Gas Lifting Agreements ('GLAs') agreements with KRG to supply Turkey around 10 billion cubic meters by 2020 ("Genel Eenergy" 2017).

One major obstacle to an energy relationship between Turkey and Kurdistan happened after September 5th, 2017, when KRG held referendum to be independent from Iraqi. The Turkish government threatened the KRG repeatedly because of the referendum. However, Turkey still needs Kurdistan's gas especially for economic growth. Genel Energy has the potential to use Kurdistan's largest gas fields to supply the industrial and merchant centers of South-Central Turkey around the ports of Mersin and Iskenderun and a string of cities from Antalya to Diyarbakir. Turkey would use Kurdish natural gas for its domestic use, but would also use it to feed the TANAP pipeline project.

Indeed, when Turkey takes the risk of building an energy deal with the KRG, it is not only fighting for the transit of some thousands of barrels of oil, but also for the possibility of developing a second leg of the Southern Energy Corridor.

The completion of the TANAP pipeline from Azerbaijan in 2018 will assist with diversification, but growing Turkish demand should require additional supplies. Genel plans to export up to 20 billion cubic meters of natural gas per year from Miran field, located some 300 km (186 miles) from Turkey (*Reuters* 2016, 1). Construction on this pipeline began in February 2016, with the aim of connecting Iraqi Kurdish gas with the Şırnak pipeline in the Kurdish-majority areas in northern Turkey (Tables 6-8). Also, Turkey will receive the cheapest price since it is the only outlet for exporting gas produced in Kurdistan. Kurdistan stands to become an alternative to Iran and Azerbaijan gas for Turkey. However, the United States during the Obama administration and other western allies did not want KRG act independently. This included skepticism about signing oil and gas deals without Baghdad's permission, as such actions would increase

tensions between Arabs and Kurds. In Turkish political circles, there is a popular quip “the U.S wants Turkey and Iraq’s Kurds to become friends, not get married”, because America does not want Kurdistan to be separate from Iraq in order to encourage stability. American policy usually is to only work with central governments on official business. America has also ignored concerns of minorities rights when they are in tension with central governments. Turkey hopes for the best of both worlds: to be able to take advantage of Kurdistan’s natural resources without having an independent, sovereign Kurdistan that could present a problem in relation to Turkey’s own Kurdish population.

The KRG should consider this when developing their partnership and diplomacy with Turkey. Interviews with political leaders within Kurdistan presented mixed opinions concerning Turkey. Officials from KRG suggested that Turkey’s impact on Kurdistan’s gas sector is positive. First, gas infrastructure in Turkey is well developed. Second, Turkey is the biggest gas consumer in region. Third, the location of Turkey as hub of many gas project proposals backed by the United States and European Union, which could enable Kurdistan to develop its natural gas sector. It is important to note that government personnel currently working in the Kurdish government belong to the two major parties, PUK and PDK. However, opposition party members view cooperation between KRG and Turkey differently than the ruling parties. Saad (2016), a PDK member and energy advisor to KRG, argued that the role of Turkish is positive. He said that Turkey allows KRG use of Turkish gas and oil pipelines which provides the KRG access to the international market. He stressed that without this access KRG would have no similar options to benefit from. Interviewee (Saad 2016) also commented, “Turkey is

very nice to us. We have agreements to use Turkey's pipelines for 50 years. Where's the bad? I'm not saying Turkey is innocent, politically but the agreement let's Kurdistan reach the sea."

The infrastructure issue is critical for Kurdistan's exporting its gas due of high costs of establishing new gas pipelines to market. Turkey allowing KRG to use its pipelines is very helpful and is a sign that Turkey is willing to help KRG in this sector. Interviewee (Saad 2016) explains

To develop Miran and Bini Bawi requires several billions of dollars not just 50 hundred million. There is a huge field but at the same time you need infrastructure and pipelines to connect from the field to market, and its costs million dollars for per kilometer.

Opposition argue that the KRG and Turkey's energy relationship is negative because there is little transparency. For example, the KRG does not disclose details pertaining to the gas agreements with Turkey to parliament. On the other hand, there is evidence of increased transparency; for example, KRG signed an oil-audit agreement with audit company Deloitte in October 29, 2016 (Ala'Aldeen et al. 2018).

A former member of Iraq's parliament, member of the parliamentary oil and gas committee, and one of the member of the opposition party stated, "the 50 years agreement with Turkey supplies Turkey with cheap Kurdish gas that only supports the Erdogan and Barzani families, without any benefit to Kurds (Hassan 2016).

Table 6. Potential Turkish Genel Energy Production. Source: Short (2015)

Field	Reserve tcf	Production/mcf
Miran	4.3 Raw gas	400
Bina Bawi	7.1 Raw gas	

Table 7. Kurdistan Gas Production and Turkish Gas Need. Source: “Door Organization for Petroleum Information of Kurdistan” (2014).

Expect Kurdistan production/gas /cubic feet	Turkish Consume daily cubic feet	percentage
2017 55,000,000	4,500,00,000	1,2
2018 120,000,000	4,500,00,000	2,6
2019 200,000,000	4,500,00,000	4,4

Table 8. Turkey and KRG Gas Agreement Annually. Source: Short (2015).

2018	2020	2025
140 bcf	350 bcf	700 bcf

4.5 Iran

Iran has very large gas reserves and it could become a substantial global gas exporter now that sanctions have been lifted (Austivk and Rzayeva 2016). There is a plan in place to develop the Pars gas field by a government whose production will increase by about 172 million cubic meters per year to its current production of 210 million cubic meters annually (“Information about Iran | Business Etiquette in Iran” 2017). Iran is one of the world’s main holders of gas reserves, with 37 tcm of gas. Iran is the second largest producing of gas in the world. As such Iran does not need Kurdistan. Iran’s pipeline exports may increase, notably with the start of shipments to Iraq to Pakistan in 2017, but

LNG exports remain a distant prospect, especially if there are no changes to the political situation (Kinnander 2010).

Kurdistan could join Iran in the future in many energy projects headed to Asian markets since some sanctions were lifted by the United States in 2016. According to Reuters, Kurdistan was in talks to potentially supply China with 4 million barrels of oil in 2015 (Bouso, Saual, and Sheppard 2014). However, the biggest issue of Iran and KRG energy relationships progress is the Iraqi government. The Iraqi government complained that the KRG violated a constitutional provision, which emphasizes the right to central state to sell oil and gas solely within the powers and not give the powers to the regions, including Kurdistan to sell oil and gas independently. Iraq wants cut off this energy relationship between Iran and Kurdistan. Baghdad has accused the KDP and PUK of collecting 250 million a month from the benefits of the oil being exported to Tehran (Natali 2015).

Geographically, KRG has 1200 km border with Iran. In the future, exporting natural gas to Iran via pipeline from KorMor, Chamchamal, and Kurdmir gas fields to Tabriz and Kermanshah in the North and Western Iran will be the best strategy for KRG since most of Iran's gas reserves and infrastructure are located in the southern part of the country. This may satisfy Iran and benefit commercially, as well as Kurdistan may find another market in Asia for its gas, such as the markets of Pakistan and China.

But at the same time, because Baghdad's relationship with Tehran is strong Iran would not bypass Baghdad to deal directly with Kurdistan. On the other hand, with continued uncertainties about the status of Iran sanctions and the nuclear deal and a

violent civil war in Syria, Turkey is the only workable exit for Kurdistan oil and gas. Kurdish gas could help TANAP by replacing Iranian gas contributions. Iran currently supplies the South Eastern of Turkey but has flow been interrupted in winter 2014 due to Iran's own shortages. Also, Iranian gas is relatively expensive and Turkey wants to diversify its gas supplies so they are less depended on Russia and Iran. Turkey also buys 9.6 billion cubic meters of gas from Iran on the basis of a contract that is valid until July 2026.

Iran with the help of the Iraqi central government is constantly applying pressure to the Kurdish Democratic Party to accept the extension of the pipeline to transport gas through Syria to reach the Mediterranean Sea as a substitute for existing routes from Kurdistan that pass through Turkey, especially with the end of the war on an Islamic state in Iraq and Syria (Figure 14). But the Democratic Party rejected this idea because of the existence of a gas contract between Kurdistan and Turkey for 50 years.

The KRG can benefit in the future by using the planned infrastructure that will go through Iran to deliver natural gas to Asian energy markets. This would increase the possible number of markets. It could also build political and economic connections with Iran, an important and powerful regional force. For example Kurdistan could pay a transport fee to Iran for allowing the flow of gas. The Iran-Pakistan –IP-- gas corridor will be operational by 2018. Iran has completed 900 kilometers of the Iranian section of the pipeline. However, Asia is a large enough potential market that Kurdistan could supplement the natural gas Iran would supply.

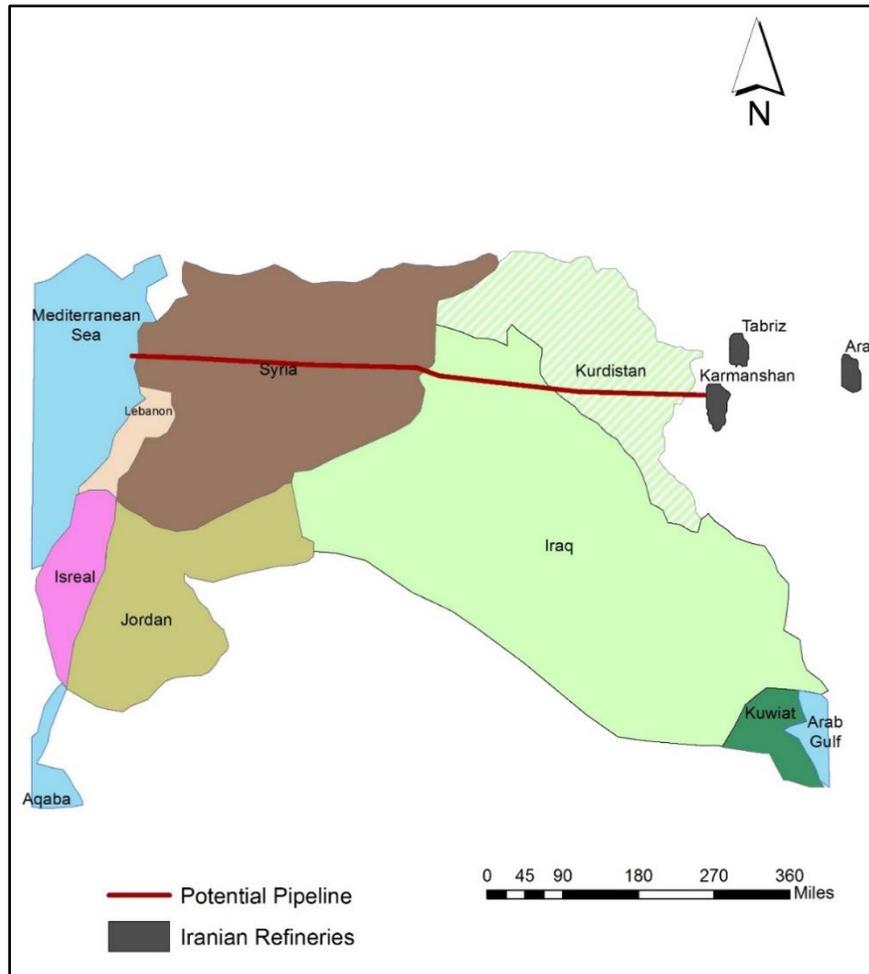


Figure 14. Potential Route of Iranian oil to Mediterranean Sea. Source: Author.

4.6 Europe, Turkey and Kurdistan Energy Relations

Most of countries of the European Union have substantial demand for oil and natural gas because most of them lack sufficient energy sources. For East and Central Europe, Russia has been the main supplies natural gas and oil. The EU has been in favor of the diversification of natural gas imports since the gas crisis between Russia and Ukraine. The European Commission and Turkey has planned to build pipelines to import gas from the Caspian Sea and Central Asia, with the Southern Corridor Project, which is

also a possibility in the future. This would open a door for Kurdistan to export its gas through those projects, such as Turkey-Greece-Italy pipeline (ITGI), the Trans-Adriatic Pipeline (TAP), the White Stream project and the TANAP Without Middle East resources. Kurdistan's gas would be the best option for Europe to fill the TANAP pipe with 10 billion cubic meters yearly. In order to meet demand of European countries and Turkey many proposals like TANAP have been suggested to establish new pipelines projects like Southern Corridor, Anatolian pipelines, South Stream and Trans Adriatic pipeline. All of these would carry gas from the Middle East and Caspian Sea to international markets in Turkey and Europe. Kurdistan gas is at the heart of the new proposals. Kurdistan has been trying to utilize its energy resources to support and lead to its political independence and make a foundation for the development of its economy. Raising the international interest in Kurdish gas is driven by the policy of supply diversification. Turkish and Western energy companies have expressed their interest in the development and search of Kurdistan undeveloped prospective gas fields that would remarkably increase the potential gas volume of the region. That will help to meet some demand from Turkey, EU and other consumers. A report identified Iraq as a promising source of gas for the European Union, suggesting trade volumes in 2030 at 15 bcm (in a base case) and 30 bcm ("Although the Resources in the West May Be of Comparable Size the Main Potential" 2018). Northern Iraq is seen as the most likely initial source of gas, with a second phase potentially involving also associated gas from southern fields. The analysis shows that the delivered cost of pipeline gas exported to any of the regional markets, including markets in southeast Europe (assumed here as the western border of

Turkey with Bulgaria or Greece) would be well below the price assumed for these markets in 2020.

Kurdistan could play a crucial role in ensuring stable gas supplies to Europe. Kurdistan's gas is convenient for Europe because it is closer than other sources with the exception of Azerbaijan and Cyprus. It could help Europe diversify the sources of energy supplies. Kurdistan could supply 30% of gas needs in Europe. According to the plans of the Natural Resources Ministry, the Kurdistan Regional Government (KRG) will produce a surplus of natural gas that will be exported abroad in the next three years, and sold to Europe (Hawrami 2016). Recently, Kurdistan PM met with the French Consul in the Kurdistan Region who emphasized that France and Europe in general are hoping the Kurdistan Region's natural gas will fulfill a portion of their requirements," Shaban noted. Annually, the KRG spends \$3 billion generating electricity," Shaban noted, adding that "There is a plan to use Kurdish local natural gas to produce electricity in the first stage and then in the next stage, the gas will be exported abroad. Israel has strongly backed Kurdistan as a stable proto-state on the other side of Arab rivals and bordering Iran. In general, the interconnection with Turkey, USA and Western countries is very important for Kurdistan energy produce from many phases. For instance, West can provide a pretty stable energy market likewise capital technology and administrative skills.

Erbil considers Europe to be its main future market. Beginning natural gas pipeline trade with Europe is strategically important for many aims. Europe would be supporting Kurdistan towards independence and potentially even become part of NATO in the future to secure the defense of Kurdistan against its traditional enemies Iran and

Turkey. A well-paying market with substantial demands that, but also the possibility of turning Kurdistan into a transit country of key importance. However, KRG would look for other markets such as Syria in the future.

4.7 The United States' Role

The United States has the ability to decrease Iranian and Russian leverage in Kurdistan and Iraq if it aids its strategic goals. The United States has many tools in order to exercise political influence in Kurdistan and Iraq; however, energy is the one with most potential. Energy cooperation between Kurdistan and Iraq is one approach that could potentially push away Iranian influence from Iraq and Kurdistan. A current example of how the United States is trying to exercise political influence is through its choice of export passage. The U.S. is trying to increase usage of the north-south energy corridor along with current usage of the Persian Gulf. Exporting Iraqi oil and gas through the north-south corridor would contribute to establishing Iraq an energy hub for Gulf States and Turkey, and possibly building an export bridge to Europe (Jeffrey and Knights 2018). The corridor will likely be through the Iraqi-Syria and Iraqi-Jordan routes to the Mediterranean Sea and the Red Sea (Jeffrey and Knights 2018). The corridor would also make use of Kurdistan's locational assets because it is close to many pipeline projects within Iraq. For example, Kurdistan is close to most gas pipelines projects supported by the European Union, like the TANAP project. Also, there would be no third transit state in between joining Kurdish gas to TANAP. Kurdistan could become a transit for many routes carrying gas and oil from a region. Kurdistan has contracts with energy companies, including Exxon Mobil, Chevron, and Total.

4.8 Azerbaijan

Azerbaijan is one of the world's oldest oil-producing countries. It is situated in the South Caspian Sea basin. Azerbaijan's economy has depended heavily on its huge deep-water, offshore oil and gas resources in the Caspian Sea ("Azerbaijan" 2017). British Petroleum ("BP Statistical Review of World Energy" 2016) estimated Azerbaijan's crude oil and natural gas reserves at the end of 2014 to be 7.0 billion barrels and 1.2 trillion m³, respectively. Crude oil exports account for 93% of total merchandise exports ("Azerbaijan" 2015). In Azerbaijan, the fiscal regime is a contractual system. Under production sharing agreements (PSAs), Azerbaijan countenances IOCs to invest in the oil and gas sector. The current fiscal regime of the country's petroleum sector is based on PSAs. At present, the major natural gas customers are Turkey and Greece ("Azerbaijan" 2017). Kurdistan could replicate the Azerbaijan model by exporting gas to Turkey and South Eastern Europe by 2020 according to agreement with Rosneft (Zhdannikov 2017b). But the Turkish market is priority of Kurdistan gas after the surplus will going to the South East of Europe. The bulk of Kurdish gas will be available just in small scale markets. KRG and Azerbaijan will participate to fill out the pipelines going to Europe and Turkey. Azerbaijan and Kurdistan gas will be a good supporter to Turkish and South east European market but with different proportions of gas. The competition between Kurdistan and Azerbaijan gas will be in price and how to most efficiently transport gas to Turkey and Europe. Producing gas offshore, as in the case of Azerbaijan, is more expensive than producing onshore gas. On the other hand, because of the cultural similarities between Turkey and Azerbaijan there are not the same potentials for conflict

between the two countries as there may be between Turkey and Kurdistan. Azerbaijan is Turkey's only gas supplier that has not been subject to a serious price conflict with BOTAŞ or to other geopolitical tensions (Austivk and Rzayeva 2017b). One reason that Turkey may not want to extend the contract with Azerbaijan is the possible emergence of cheaper gas from KRG at some point in the period to 2020 (Austivk and Rzayeva 2016). Because of the proximity of Kurdistan gas, growing demand in Turkey, and appropriate price the Turkish market looks to be the most commercially feasible. Moreover, the estimate volumes of Kurdistan gas reserve 5.7 trillion cubic meters exceed those of Azerbaijan by around four times if the estimates are accurate (D. O. Okumuş 2013). (See Figure 15).

The likelihood of new gas transportation capacity across Turkey to accommodate export volumes from Azerbaijan offers an opportunity for tie-ins from Kurdistan, and the possible extension of these pipeline routes into South East Europe provides an opening for KRG to become a supplier to European gas markets, which are projected to require almost 200 bcm in additional gas imports as demand rises and indigenous production falls. Finally, this consistent amount of natural gas Kurdistan could satisfy its domestic consumption and export surplus gas to Turkey and Europe.

After Azerbaijan become independent from Soviet United in 1991, the former president Aliyev made a decision not to establish new pipelines to only Westerns countries (Mansurbeg 2016). Aliyev considered the proposal by law makers of Azerbaijan to only Western countries to be a provocations toward Russia. Aliyev said new pipelines projects should instead include routes to both Russia and Europe. The gas

policy of Azerbaijan has been working till today which satisfied both Russia and Turkey. The next section explores the similarities and differences between Kurdistan and Azerbaijan in term of energy policy.

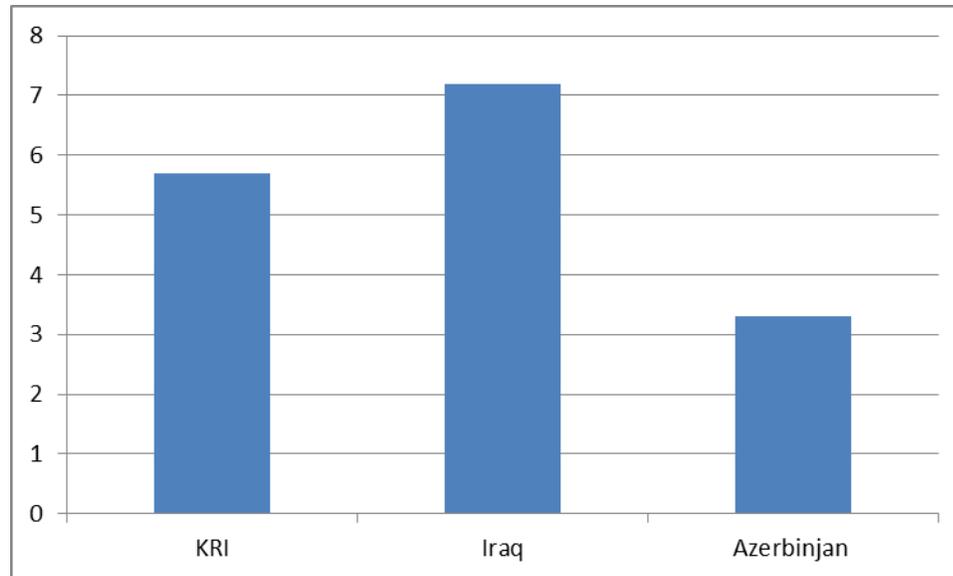


Figure 15. Iraq, Azerbaijan and Kurdistan Gas Reserves in bcm. Source: Author, based on Roberts (2016).

4.9 Energy Policy: Comparing Azerbaijan and KRG

Natural resources have been politicized as a substantial tool for generating political power and to protect security. The world's natural gas reserves are estimated at 6,879 trillion cubic feet. Kurdistan accounts for 43.7 billion barrels of proven oil reserves, 25.5 billion more barrels of unproven reserves, and 5.7 trillion cubic meters of gas (30% of Iraq's proven oil reserves). If Kurdistan was a recognized country, the amount of oil and gas reserves would place it among the top 10 oil rich countries in the world 2013 (“Active Oil Companies in Iraqi Kurdistan” 2013).

Kurdistan has emerged as an attractive point for foreign investments (Akreyi 2017). Several multi-national companies in different place across the world poured to Kurdistan. In 2017, by signing the agreement with Rosneft, KRG has 53 sharing contracts with 28 companies in 27 different states operating in Kurdistan (Akreyi 2017). Turkey and the European Union have a strong interest in building pipelines and providing an alternative source of gas for Turkey and Western Europe. KRG has also been covertly building energy relationships with Israel and European countries with the intention of strengthening Kurdistan's geopolitical position in the region.

Kurdistan's relations with Turkey and the European Union are similar to that of Azerbaijan, with a key difference being the sovereign status of each. While Kurdistan's semi-independent status has given it some appeal from other major players in the region, such as Turkey and Iran, its lack of independence prevents it from fully benefiting from relations with other countries. The political and economic systems of Kurdistan and Azerbaijan are also similar. Finally, both increased their level of independence in the early 1990s.

After gaining independence, Azerbaijan established its own oil and gas company known as SOCAR. There is currently support in Kurdistan from both the population and parliament to establish its own oil company for the purposes of resource exploration and marketing.

Upon establishing SOCAR the first duties of the president were to encourage production and trade in energy resources. Aliyev, the sitting Azerbaijani president in 1992, implemented strategies to welcome neighbors and international powers such as

Russia, the United States, and Iran (Svyatets 2013). Conversely Kurdistan possesses more natural gas wealth than Azerbaijan did in the 1990s. Kurdistan's current reserves of natural gas are estimated at 5.7 trillion cubic meters ("Active Oil Companies in Iraqi Kurdistan" 2013).

Kurdistan has struggled against the Iraqi Central Government to maintain the partial sovereignty in gained in 1992. Similarly, Azerbaijan worked to protect its sovereignty from powerful neighboring states like Turkey, Iran, and Russia. (Mehdiyeva 2011) presents four options for newly sovereign states, but the first option is most applicable to Kurdistan's current goal. It includes alliance-building and strategic maneuvering. When faced with a similar situation Azerbaijan also utilized the alliance-building option in developing energy policy. Azerbaijan has placed energy security at the center of its political strategy and has used its resource wealth toward national benefit.

Kurdistan has attempted to use its gas and oil wealth in a similar manner. Specifically, Kurdistan has attempted to leverage its natural resources to establish relationships with neighbors. Proper handling of its natural resources could potentially mitigate the strength of powerful neighboring countries. KRG should look to Azerbaijan as an example of how to participate with multiple routes because the two are very similar in terms of neighbors, dependency on soft power, and both need diversity of supply routes. Both Azerbaijan and Kurdistan have similar reserves of oil (Mills 2018a).

The key lesson Kurdistan stands to learn from Azerbaijan's resource policy is flexibility to meet demands from multiple actors. Former Azerbaijan president Aliyev approached the link between national interest and foreign relations carefully. He

undertook efforts to protect energy relationships with multiple energy companies thereby not relying too much on any one company. Azerbaijan government clearly communicated that relationships with energy companies from competing countries was welcomed. Ayliff instructed his cabinet to propose strategies that required satisfying both Russia and Western countries, predicting extending relations to only one could cause provocation (Mansurbeg 2016). The possibility of provocation was especially a concern with Russia as Azerbaijan was formerly part of the former Soviet Union.

Kurdistan could implement a similar strategy in dealing with companies and take effort to not ignore or alienate potential partners. KRG have agreements with Turkey, but the KRG should also have the similar agreements for example with Iran if possible.

The United States has tried to urge Baghdad and Erbil to select the Turkish route exclusively. Similarly, the US urged Azerbaijan to build relations (and pipeline) with Georgia instead of Iran and Russia. This was an effort to minimize Iran and Russia's role in energy transport. Russia sees such efforts in "the near abroad" and Middle East as a blatant attempt to more undermine Russia interest and delay the renewal of its Great Power position (Yergin 2011). In response, the Russian oil company Rosneft has increased its investment and presence in Kurdistan. For example their last agreement with the KRG they plan to spend 4 million dollars in Kurdistan gas and oil sector over next two years (Zhdannikov 2017b).

Dependency on a single consumer could be a strategic failure. Doing so would fail to aid Kurdistan in acquiring new allies in region. Azerbaijan has avoided dependency on a single consumer or a single pipeline. KRG has many potential

consumers if they want to extend energy relations. Potential future customers include Italy, Russia, Israel, Spain, Germany, Croatia and Latvia. In 2017, Kurdistan signed a substantial deal with Rosneft Company for natural gas exploration and exportation. This raised concerns in Iraq, Turkey, and the West. KRG stated the deal came through only because Rosneft had offered a \$1 billion advance to KRG (Chmaytelli 2017). Kurdistan has shown Turkey that it is not the only potential customer for Kurdistan's natural gas. This could increase rivalry among consumers and, as a result, increase the importance of Kurdistan. For instance, Russia showed support for Kurdistan in its dispute with Baghdad and Ankara concerning the recent referendum.

Kurdistan could potentially turn its gas from TANAP to pro-Russia and pro-Iran projects. One US concerned issue that remains unsolved is Iraq's energy cooperation with KRG. Conflict between Erbil and Baghdad over dispute areas (Articles 140) remains a big obstacle for energy development. The U.S. has been unwilling to solve the issue and Kurdistan has not received as much support from the United States as expected. Nevertheless, the conflict between Erbil and Baghdad was one of the main reasons why KRG chose to plan gas pipeline routes Turkey and Russia instead of south Iraq's port.

Erbil and Baghdad tension are similar to like Azerbaijan-Armenia tensions in Nagorno-Karabakh. The Nagorno-Karabakh dispute is the reason why Azerbaijan and the Western allies elected to use BTC route through Georgia instead of going through Armenia. Physical security of resource transport is the motivation for Azerbaijan choosing the BTC and Kurdistan's choosing of planning gas pipeline to Russia and Turkey.

Even existing pipelines are often non-operational during because of attacks on infrastructure from PKK in Turkish territory. The geopolitical maneuvering by Kurdistan attempting to balance relations with United States, Russia, Iraq, and Turkey, help Kurdistan's goals of establishing energy export decision-making and independence.

Economic factors can only partially explain why Turkey and Russia is so interested in Kurdistan. KRG has been friendly with Turkey, U.S. and Western investors. Kurdistan and Turkey have tightly cooperated in gas trade and investment for almost a decade. Turkey is the leading state in the gas trade and its government has not stopped the flow of oil from Kurdistan in favor of other oil and gas sources in Middle Eastern or Caspian region. Turkey continues to ignore criticism concerning Turkish-Kurdish relation Iraq's central government.

The European Union's desire to reduce Russia's dominance of the European and global natural gas markets is important for Kurdistan's gas industry. But the LNG and conventional gas revolution in the US and Europe may affect the significance of Kurdish gas in Europe. However, LNG imports to Europe were in fact lower by 3.3 per cent in 2016 due to a number of problems at new LNG projects, including commissioning problems, feed gas supply issues and structure slippage linked to go up costs, with the result that total LNG supply has not increased as fast as predicted (Henderson and Sharples 2018). (See figure 16).

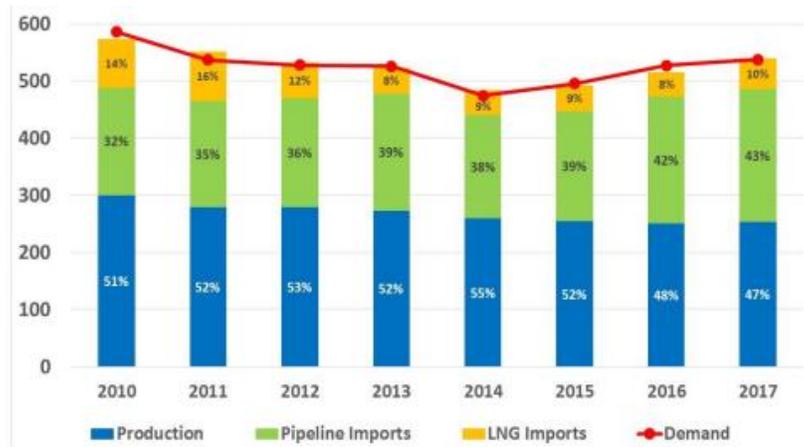


Figure 16. European Gas Imports and Demand, 2010 – 2017. Source: Henderson and Sharples (2018).

The United States strongly supports Baku. US support is a major factor in determining the selection of pipeline routes and how deal politically with gas policy with other states. The Azerbaijan case provides several lessons that can be applied in Kurdistan, such as geopolitical vying being the main obstacle to mutually profitable energy deals. This case illustrates that it is important to take into account the issue-linkage between energy negotiations and geopolitical competitions. Conflicts between governments can negatively influence the outcome of energy talks, such as those between the United States and Russia, Turkey and Iran. However, there are also key differences between Kurdistan and Azerbaijan regarding energy policy. First, Kurdistan’s status as an oil and gas producing region goes back to the 2007 while Azerbaijan's production goes back to the mid-19th century. This distinction is significant because it is related to differences in diplomatic experience, specifically experience in dealing with resources and outside influences. Also, Azerbaijan was part of the Soviet Union, which was consider one of the most powerful states in the world in term of economics and politics at

the time. Second, Azerbaijan was the biggest oil producer in the world, providing half of the world's oil output during the pre-WWII period. At that time Azerbaijan produced 75 percent of the overall Soviet oil output (Svyatets 2013). Kurdistan's gas reserves are like Azerbaijan's.

Both Kurdistan and Azerbaijan have problems with strength of democratic institutions. For example, the Barzani and Talabani families in Kurdistan and Aliyev family in Azerbaijan have had disproportionate power for long periods. Civic freedoms and the lack of democratic institutions have not prevented relationships with Turkey, European countries and the United States. Azerbaijan and the United States have overcome all these serious obstacles and created a close energy and military partnership. Hence, you can observe a major difference between the policies of two systems. Azerbaijan has been able to keep close relations with the United States and Iran at the same time but Kurdistan has been unsuccessful in balancing relations. For example, ethnically the Azeri community comprises 26% of the population of Iran (Souleimanov, Pikal, and Kraus 2013). Even though the Kurdish population makes up 15% of Iran's population, this has not translated into similarly good relations. The KRG has focused more on Turkish relations.

KRG should seek positive collaboration with Iran via establishment of new gas pipeline through Iranian territories and pay to Iranian transit fee. This would promote cooperation from Iran in other aspects of KRG foreign dealings like with Europe and Turkey. KRG should not to rely on a single route as it would limit flexibility. KRG calculating the cost and benefit of the trade and also evaluate geostrategic and

geopolitical outcomes of new partner and markets. For instance, Asia is a potential market that Kurdistan could export its natural gas into. The KRG can benefit from the existing infrastructure through Iran to transport natural gas to Asia. Federal Minister of Petroleum has said that the Iran-Pakistan (IP) gas pipeline and TAPI gas pipeline will be completed in 2018 and 2020, respectively (The Express Tribune 2016). If not, the IP pipeline will pose a direct challenge to Washington's sanctions. The United States has continuously threatened Pakistan with economic sanctions if Islamabad goes ahead with the IP pipeline project. The Kurdistan government has tried to develop new energy relations and policy to attract companies to Kurdistan, however the recently failed referendum has provoke anger from neighbors and the disappointment of major countries like America. This has negatively impacted on all sectors of life in Kurdistan, including the energy sector.

4.10 TANAP

TANAP is a new gas pipeline project intended to export gas from Azerbaijan and Middle Eastern countries to the Turkish-Greek border, across Greece, Albania and the Adriatic Sea before reaching Italy. TANAP is currently under construction and projected to export six billion cubic meters of gas to Georgia and Turkey by late 2018. The gas pipeline which is to be a base in Azerbaijan announced in 2013. They will carry out natural gas from Caspian Sea and Shah Deniz II to the European Union through Turkey. The supplies of Azerbaijani gas resources will account for only around 2% of EU gas demand and consequently will not diversify the market significantly (Kardaš 2014). Gas imports from Azerbaijan may only be helpful in diversification of gas sources for Greece

and Bulgaria, which are overly dependent on Russian gas and are geographically closer to Azerbaijan (Kardaš 2014). The purpose of TANAP is not solely to carry gas from Shah Deniz II but to export potential gas for Middle Eastern and Central Asian sources as well. Turkey wants to be an energy hub in the region. For now, Turkey is looking to enhance and satisfy its own developing natural gas demands. Kurdistan with natural gas reserve of 5.7 tcm it will be one of the potential suppliers to this pipeline in 2020 and plans to fill 10 bcm annually. Turkey already began building a pipeline from Mardin to Kurdistan border under BOTAS contract (Balat and Ozdemir 2006). Kurdistan oil pipelines currently transport 550 barrels/day to Turkish port Ceyhan. Shah Deniz II gas field may participate in this new pipeline and as all Azeri's gas appraisal be 2-3.5 trillion cubic feet (tcf) which means Azerbaijan does not have sufficient gas to fill out the TANAP pipeline. This is an opportunity for Kurdish gas to find the new buyers in Europe. Due the closest point of Kurdistan from TANAP being only 570 km away, it would be easy for KRG to link up with this gas pipeline. Kurdistan would needs a pipe extension from the city of Zakho to Erzurum in Turkey. (See figure 17).

Like Azerbaijan, KRG wants to establish new gas pipelines. KRG should establish new pipelines from Kurdistan through Iran to sell their gas to Asia market like India and Pakistan which gave Iran transit fee and also dragging Iran to KRG circle economic interest. On other hand, security issues are one of the most significant factors that has affected pipelines development Kurdistan wants to export gas from the Caspian Sea to Southeast Europe and Turkey. The Kurdistan Workers' Party — considered a

terrorist group by most of the international community attacked the lines in Eastern Turkey that bring Azerbaijani and Iranian natural gas to Turkey (Roberts 2016).

Kurdish leaders believe that because the region is landlocked, they must consider relations with neighbors and transit countries as significant factors in its gas export strategies. Turkey has been the most important energy partner of gas export to Europe. Iran and Iraq are the preferred partner for future access to Southeast Asia's markets.

The clear connections and challenges of transit issues can be seen in KRG energy policy decision to make Turkey its key transit country. KRG has provided Turkey with subsidized prices. And both states share common security concern about ISIS and PKK.

Establishing energy independence from Russia natural gas imports was also a strong motivation for Ankara to diversify its hydrocarbon imports with Kurdistan gas. This desire grew after weakening of relations with Moscow concluded in the Turkey - Russia conflict of Syria war. Another, important factor for Turkey was that Kurdistan sells its gas for lower prices than Russia. Moreover, Turkey receives natural gas and oil as a transit fee in exchange for being the key transit country for Kurdistan hydrocarbon resources. There is currently an active agreement between Turkey and the Kurdistan Regional Government that was signed in 2013 for 50 years to supply Turkey with gas and at a cheap price: for per 1,000 cubic meters Turkey will pay \$150 (Roberts 2016).

However, Iran is optimistic about Kurdistan gas resources. Even though Iran has second largest natural gas reserves in the world, its increasing production can barely keep pace with domestic consumption. Lacking foreign investment, Iran's domestic investment in its gas pipeline infrastructure is insufficient because of its high

subsidization of domestic consumption. This is because the infrastructure based on domestic resources does not cover all parts of the country (Jalilvand 2013).

There has been a tense political relationship between the Iran and Kurdistan. One source of tension was Kurdistan's decision to hold a referendum on self-determination. This could encourage Kurds in Iran to do the same (Jalabi 2017). Another source of tension is associated with the relationships between Iraq and Iran and sectarian religious conflict. Despite existing conflicts between Kurdistan and Iran, Iran still needs Kurdistan's gas because of Iran's gas fields are located in the far south of the country, meaning that it would need to extend a pipeline from South to North at great expense. For this reason, Kurdistan is closer to Iran in terms of distance from all other places exporting gas.

In the future, Kurdistan as a transit region must be addressed especially if will happened unity between west Kurdistan and south Kurdistan. More interesting for KRG is that Europeans have a planned to import gas from the Qatar and Iran. This plan requires Kurdistan to function as a transit region for gas originating from the Persian Gulf and Asia and traveling to the Western markets. Kurdistan's position as a key transit region for future Western Asian energy trade has been considered a strategic asset by not only policy makers but also by USA and European countries. Kurdistan would be the only region that can provide transport routes for Iranian and Qatari natural gas to the West without passing through Turkey. As well as another thing that Iran fears of the relationships between Kurdistan and Turkey because of religion with Sunni being the dominant sect in both places.

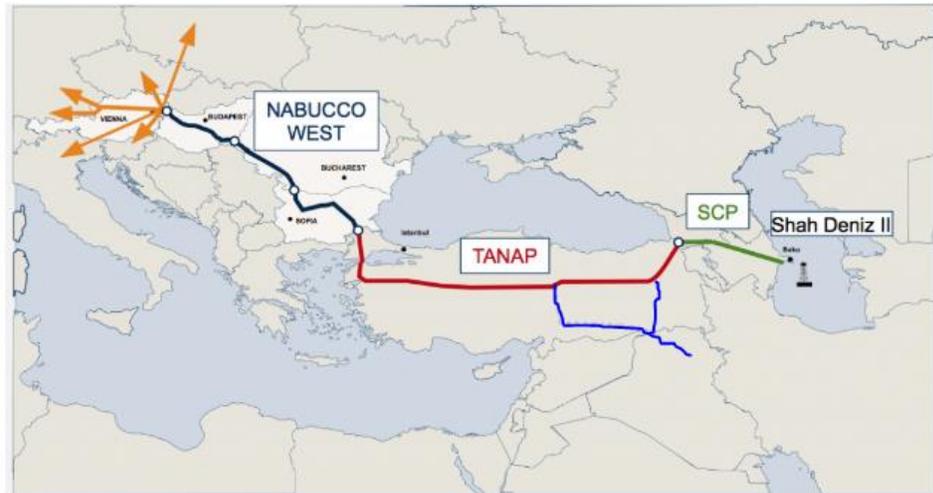


Figure 17. Kurdistan’s Potential Gas Pipeline to Access TANAP. Source: Author, based on PressTV (2015).

4.11 Energy Security

Energy security has become a broadly discussed topic today in many disciplines related to international relations (Abdulrahman and Sebastine 2013). The current geopolitical developments in the world have prompted countries to discuss the energy plan in their foreign plans seriously. The geopolitics of energy is shaped by geographical location and the role that relative location plays in terms of transit, supply and demand for energy (Austivk and Rzayeva 2017b). Energy geopolitics involves location, volumes of natural resources, who controls them, how available they are, the prices, alternative transportation routes political decisions. But, modern geopolitics became concerned with the political discourse among international actors resulting from all factors that determine the political and economic importance of a country's geographic location. “Relative gains matter, but so (also) joint gains from possible cooperation” (Victor, Jaffe, and Hayes

2006). Geographical location and role for supply, demand or transit for energy is defined geopolitics of energy for any region or country (Austivk and Rzayeva 2017b). Energy geopolitics of any region must be understood by both the size and location of own and other natural resources, how available they are, who controls them, their cost, alternative transportation routes, how regional and global markets balance, market mechanisms and regulations, political decisions, and prices in general (Austivk and Rzayeva 2017b).

Despite ongoing discussions about the exact size of Kurdistan gas reserves, the region has undoubtedly significant gas resources. The Kurdistan region's giant natural gas field has made the region a potential key player in global energy security (Dickel et al. 2014).

Natural gas will remain a resource of strategic and political importance. According to scholars the meaning of energy security concepts vary widely. As Johnson and Boersma defined energy security in both the United States and the EU is: (1) 'availability' or do we have enough when we want it (2) affordability', at the right price; (3) 'efficiency', can we use less and get the same output; (4) 'sustainability', are we irreparably harming the environment through energy production and use (Johnson and Boersma 2013).

Depending on these basic concepts of energy security Kurdistan could participate in domestic and forging energy security. The Kurdistan region's natural gas production could be a possible future source of diversification of EU's natural gas supply through the Southern Gas Corridor, which aims to decrease European dependence on Russian gas (Auzer 2016). Kurdistan is now at the top of the list of potential supply sources (Chyong, Slavkova, and Tcherneva 2015). They offer incentives to foreign oil companies to invest in the Kurdistan oil and gas sector. Kurdistan could play a big role in term of suppling

Europe with natural gas if the conflicts between Baghdad and Erbil over revenues sharing, export strategy and disputed territories are organized out.

Even in term of traditional theories, Kurdistan's position matches with much of Mackinder's pivot area and Spykman heartland theories that emphasizes on the importance of location in Central Asia and the Middle East. Kurdistan could a play a crucial role in Middle East's energy strategy. Kurdistan will enhance Western, particularly European, energy security because the pipelines across Turkey avoid Russia and Iran. The ultimate result of the implementation of these alternative routes is that Russia's potential as a regional hegemon on the Eurasian continent is diminished (Efferink 2015).

In the future, Kurdistan can have an influence Turkey's position towards the Kurdish issue by supplying it with gas, according to former chief executive of oil and energy company BP in Atlantic summit in Istanbul (Short 2015). However, being landlocked may affect ability to archive all categories that define energy security. But a situation of instability in the region will put the energy policy of Kurdistan at risk. At the same time, how to draw up an energy policy that does not conflict with exporting countries is very important. The best option of KRG if they want escape the Russia pressures and they show up as not compete Russia and Iran gas in the big market in Europe. Politically, it would be good for Kurdistan to bring an Asian energy company to Kurdistan from places such as India, Iran, Pakistan or China, because this would enhance Kurdistan's position and lead to more likely prospects of independence.

Kurdistan's natural gas could significantly improve the economic and human condition and contribute to the development and security natural gas to Turkey and even Europe. The implications for Kurdistan's gas balance are as follows. Of the gas produced in 2020, up to 20 bcm (6.6 bcm to Turkey under its Miran contract, 10 bcm to KorMor counterparties and 2.2 bcm to Iran) could be under contract for export, leaving 8.4-11.9 bcm for domestic consumption (Roberts 2016). KRG forecasts 11.8 bcm of domestic consumption in 2020, 25 and would presumably have to make up any shortfall (up to 3.4 bcm) with Russian imports (Katona 2017). If the Kurdistan gas become ready to export would impact Russia export gas to Turkey. KRG and Turkey have signed agreements for Kurdistan to export 10 bcm /year to Turkey from 2018, but there are insufficient compressor stations for transport of gas to areas of consumption (Rzayeva 2018).

4.12 Security Issues

Energy security today and in the future is among the most serious security and economic challenges. Many terrorist groups have targeted gas and oil facilities and storage, and pipelines. They are behind the attacks of gas and oil infrastructures seeking to destabilize the internal and external affairs of states in the Middle East and North Africa. The energy infrastructures have been exposed to growing terrorist threat which ties with growing political and economy instability in gas and oil producing regions. According to Tyagi (2016) in 2003 and 2007 increased attacks targeting energy oil and gas infrastructures nearly 40% of the world energy and its transportation. Nevertheless, a combination of a relatively stable security situation, investor-friendly policies and the allure of unexplored energy reserves have attracted an increasing number of oil

companies, including the world's largest, Exxon Mobil, which last year signed a landmark deal with Kurdish officials (Akreyi 2017). The KRG and the Kurdistan political leadership came to an inference that only strong security can fence the future development of Kurdistan in all fields. Therefore, what have been carried out in terms of stability and security paved the way for many to interest from Kurdistan as a region for business opportunities.

The situation is still quite fluid. Bagdad and Kurdish authorities still have disagreements on hydrocarbon policy, and the relationships between political actors involving the Syria civil and others such as Militia groups and parties have been a problem for KRG. Thus, security has a great role in decreasing development levels of the KR after 2014, when ISIS attacked Kurdistan and captured significant territory. KRG faces many complicated issues which has pushed interested companies to re-think investment in the energy and natural gas. The security issues associated with the influx of refugees to Kurdistan makes the natural gas security progress slower in terms of development and exportation to the international markets. These issues have lead some companies to step back from investment in the upstream and mid-stream business, including the recent withdrawal from the Kurdistan's big oil blocks by ExxonMobil, Shell and Chevron energy companies from the Betwata and Chwarta oil fields and the Rovea and Shekhan (Figure 18).

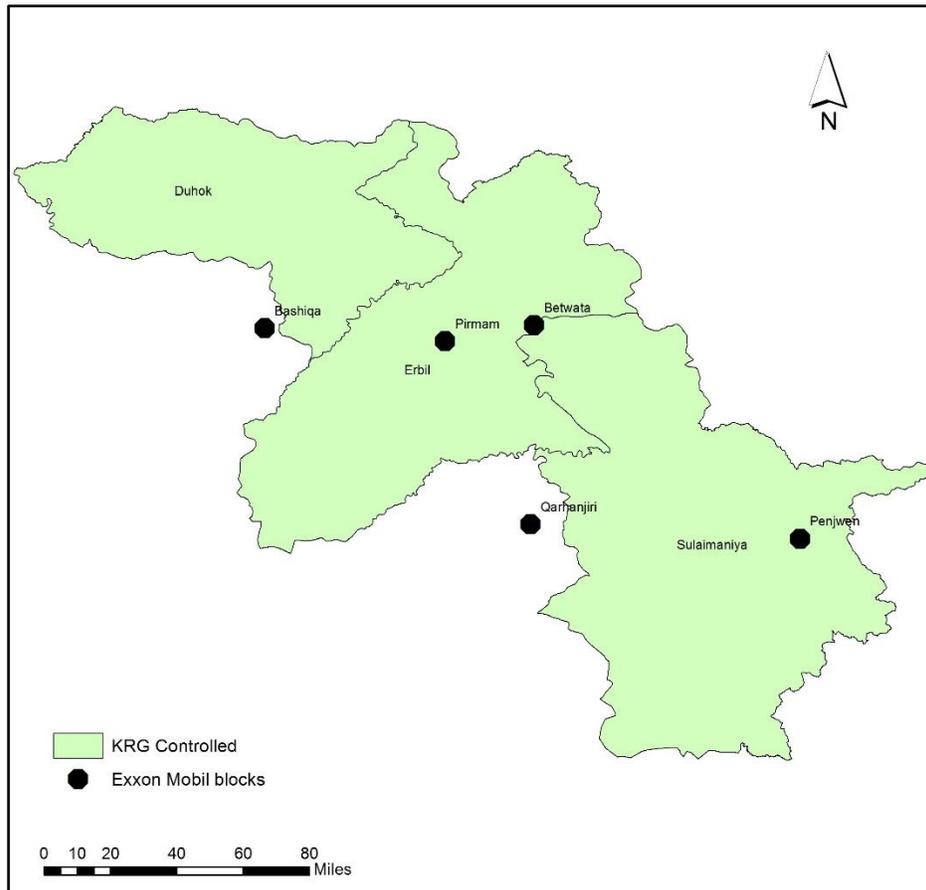


Figure 18. Exxon Mobil Blocks Withdraw in Kurdistan. Source: Abdullah (2016); “ExxonMobil Withdraw from Kurdistan” (2017).

The Syrian civil war has had direct and indirect influences on KRG oil and gas policy. Russia’s and Iran’s motivations for not wanting to remove Assad from power and getting involved in the Syria war are at least in part related to questions over the future of natural gas supplies and markets (Chang 2015). Iran and Qatar have plans to establish new gas pipelines to export gas via Saudi Arabia and Syria to Europe (Chang 2015).

Turkey and KRG fear the PKK because both cannot solve the security problem alone. This why Barzani and Erdoğan presently want to continue peace talks with PKK.

For this purpose, the president of the Kurdistan Region visited the Turkish city of Diyarbakir on 2013, indicating Turkey's wish to further build its relations with Iraqi Kurdistan. In addition, Erdogan wants to exploit the influence over Barzani to gain the favor of Kurds in Turkey in order to put down any rebellion and involve them in the political process.

Russia has played a clear role supporting the PKK and its military-backed groups. Russia uses the PKK as a weapon against Turkey, which creates a situation of instability, especially in the areas that pass gas pipelines that transport gas Azerbaijan from the region of Erzurum which has a Kurdish majority. Furthermore, the question rising which is as long as Turkish faces the security issue, they will be able to guarantee security for the pipeline in the face of what would seem to be nonstop threats by PKK and pro- PKK elements in Turkey to attack gas infrastructure. From Turkey's ruling AK party's perspective, a rapprochement with Iraq's Kurds could guarantee at least some of Iraq's oil flowing to Turkey, and enlist KRG's support for the Turkish peace process with its Kurds. Turkey is an important player and influencer of Iraq's energy industry, as an importer of, and as transit country for Kurdistan's oil and gas.

KRG could confront security issues by using Trans Anatolian pipeline (TANAP) and the Trans Adriatic pipeline (TAP) to export its gas to international markets. The two important pipelines, Baku-Tbilisi- Erzurum and The Kirkuk-Ceyhan Turkish oil pipeline, are for transporting gas and oil from Kurdistan and Azerbaijan. Both pass through the Kurdish areas inside Turkey and have been attacked by the PKK and pro-PKK force. One resolve to Turkey is the peace talk continues between Turkey and PKK lead to guarantee

of energy security. On the other hand, after Turkey took measures against Kurdistan in response to the Kurdish referendum, including political and economic sanctions, such actions could backfire for Turkey by weakening Barzani while empowering the Kurdistan Workers Party (PKK). Boosted by the Kurdish autonomy drive in northern Syria and its defense of Sinjar's Yazidis against the Islamic State (IS), the PKK stands a chance of gaining a greater foothold in Iraqi Kurdistan. At all, KRG is in control of the security situation despite the limited human and material resources. Actually, without stability and security in the KRG it would have been very difficult to launch and develop the gas industry. However, the KRG recognized that any future step for exploiting and exporting gas abroad cannot be succeeded easily without Turkey Iran and Iraq cooperation.

4.12.1 ISIS and Militias Groups:

The most significant challenge facing the energy sector is security. Terrorist organizations have always been interested in targeting oil and gas facilities. There are many armed groups in Iraq under the different ideological and religion authority that do not adhere to the rule of law. There are Shiite and Sunni extremist groups. The Islamic state of Syria and Iraq is a terrorist group as known ISIS or ISEL, it collects large sums of money by assaulting gas and oil facilities. According to Iraqi forces, oil and gas facilities have been attacked 500 times between 2003 and 2008. ISIS also attacked Kurdistan in June 2014 though it was later liberated. ISIS militants seized some oil and gas fields near the Kirkuk province like Khabbaz and Bai Hassan fields. According to Iraq security agency data, while they were in charge they sold oil by tankers which brought around \$1 million per day. ISIS attacks on oil and gas pipelines are a big concern to Kurdistan

economy and also on transportation and production operation especially in disputed areas with many fields of gas and oil such as in Kirkuk and Mosul.

In response to security concerns, many companies withdrew from Kurdistan such as ExxonMobil, the Irish oil and gas company Petro Celtic. A summer 2016 attack by ISIS on Kirkuk oil fields caused oil exportation to be halted for two days resulting in 270,000 barrels per day of sales being lost, costing the KRG \$19 million, assuming the price per barrel of oil at \$35 (Zulal 2016). In the meantime, ISIS activities presented KRG a good opportunity to secure the return of all Kurdish lands taken by the regime of Saddam. Kurdistan security forces seized the territory in dispute area, such as Ain Zala, Khabbaz, which included many oil and gas fields, after the Iraqi army was defeated by ISIS in 2014 which expand ISIS area of control by 40 percent. However, much of this has changed since October 16, 2017. Since October 2017 Iraqi government forces and Shia military groups have taken control of these oil and gas rich areas.

Shiite groups became involved in the campaign against ISIS. The problem is that these groups are not controlled by the government and they have their own agendas. Most of the groups have loyalty to Iran, which is considered an enemy to Kurdistan's national interest. These groups consider KRG a hurdle to their goal of establishing a Shiite crescent encompassing Iraq, Syria and Lebanon.

4.13 Kurdistan and Geographical Limitations

Kurdistan, the land of roughly forty million Kurds, is the world's largest nation without a state. Kurdistan is a landlocked region without a river or sea that has access to

an ocean. As considering the landlocked location of nature the KRI, it will encounter difficulties in getting its resources to the world market.

Geopolitical theories have different views on the importance of location. One of the most important theories of geopolitics in the twentieth century was the focus of many geographers and politicians on Mackinder's heartland theory, in which Kurdistan is located in the area known as the inner crescent. Based on analysis the theory predicts the importance of Kurdistan's location. Because of its location, Kurdistan was likely to be divided by the powers of the Heartland and Rimland. Kurdistan, falls within both the Heartland and the coastal fringes of Eurasia, what Mackinder called the Inner Crescent and Spykman later called the Rimland (Efferink 2015). The geostrategic position of region plays a large role alongside other aspects like quality of government, cultural and demographic characteristics. The geographical location of landlocked countries creates many obstacles in foreign trade and presents challenges to the formation of foreign policy toward neighboring countries. Lack of ocean access and energy resources are also highly relevant, as (Idan and Shaffer 2011) noted. The location of Kurdistan makes the KRG less independent in term of economic or the strategic decisions. Kurdistan being landlocked creates many obstacles, and it is made worse by difficult relationships with neighbors.

Kurdistan's relations with Iran, Iraq and Turkey have remained complex. Iran supports the anti-Turkey Workers Party and Iran also supports the Shiite militia against Kurds, and for these reasons Kurdistan wants independence. After the referendum held in Kurdistan on the question of self-determination, Iran and Turkey took steps against

Kurdistan such as closing the border between Kurdistan and them, which hurt Kurdistan and made the situation worse. Landlocked states have much less flexibility in terms of policy, which in turn affects their foreign policy decisions. But with the development of the world and technology, there have been changes in the definition of geopolitics. Political factors can have a greater negative influence than being landlocked, such as hostile neighbors, rough terrain, and colonial heritage (Sievers and Urbatsch 2018). The characteristic of Kurdistan's land is another obstacle worse than being landlocked. Mountains cover half of Kurdish homeland, making the Kurdish community is more separate, not integrated. Geographic location is only one factor. All other factors must be taken in consider such as how available resources are, the cost, the size and location of energy, alternative transportation routes to market, balance and political decision, and regulation of market are all important too. Also, the more external factors have impact on the policy of the countries with not outlet access to water body, which are certainly important because markets, transit routes, infrastructure, security and financing have to be taken into account.

Many politicians propose to the Government of Kurdistan to strengthen its relationship and cooperation with major countries such as America, the European Union, and Turkey to overcome the obstacle of being landlocked and remain a political force. The KRG is among Turkey's best ten economic allies. The two share a 350 km border, which remains Turkey's only crossing border point to Iraq (Heshmati, Dilani, and Baban 2014). The Kurdistan government, especially the Democratic Party, maintains good

relations with Turkey, as well as the Patriotic Union of Kurdistan with Iran, which will serve as a safety valve for the security and stability of Kurdistan.

Although Turkey is considered a staunch opponent of an independent KRG, “Turkey could find great economic gain should they cooperate with the Kurds and provide an avenue for oil to the European Union and the U.S (Lewis 2008, 65). Along these lines, KRG has attempted to build relationships with countries that have sympathies toward Kurdistan, such as Israel. The right of Israel to exist is well recognized by the KRG. Masoud Barzani, President of the Kurdistan Region, in a 2005 interview with the Saudi daily Al- Hyat said, “Iraqi Kurdistan has no objection to establishing diplomatic relations with Israel, establishing relations between the Kurds and Israel is not a crime” (Khalidi 2017). Diversification of natural gas exports, which would lead to a breakout from the current regional infrastructural-geographical constraints. In the future, Kurdistan may hold a referendum and gain independence but they will still remain influenced by powerful neighbors like Turkey and Iran. It will also be influence by its location. On the other hand, since 2007 Kurdistan governments have been accused of utilizing oil and natural gas resources in order to strengthen the region’s independence and to stabilize its internal political and economic order, while at the same time opposition parties have suggested that widespread corruption leads to high level officials in the ruling PDK and PUK to profit personally from oil and gas sales, since Barzani and Talabani rose to power in 1991. In the end, the presence of powerful business investment in Kurdistan will provide KRG with a safety that weapons cannot. Also, Kurdistan may have one outlet to the ocean through west Kurdistan in the future, if the Syrian crisis ends (See Figure 19).

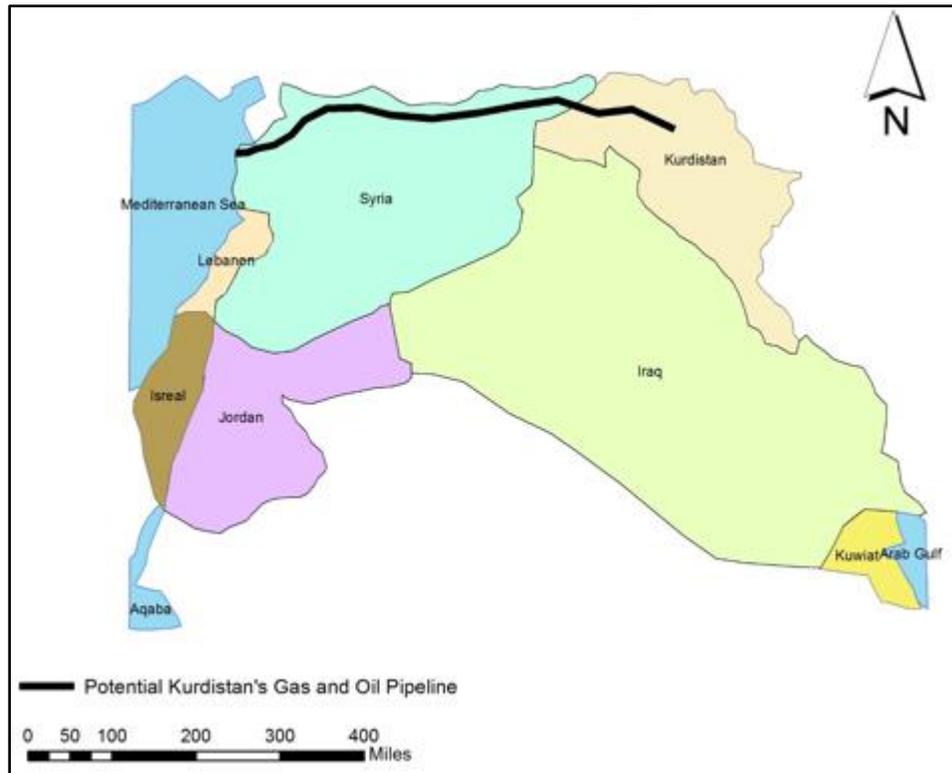


Figure 19. Kurdistan’s Potential Gas and Oil Pipeline to Syria. Source: Author.

4.14 The Future of Kurdistan’s Gas Industry

4.14.1 Domestic Demand and Local Issues’ Scenario:

The current gas production of KRG stands at nearly 3-4 (bcm) billion cubic meters per year. Most of Kurdistan’s electricity power stations are run by gas with the exception of Duhok power stations, which are powered by diesel. Diesel stations cost KRG \$100 million per month and are more expensive to run than gas powered plants (Mills 2018). Since KRG has solved its lawsuit with Dana Gas (Zhdannikov 2017a), they have planned to further develop the KorMor and Chamchamal gas fields. KRG also plans to drill eight new gas fields.

According to the managing director of Dana Gas, gas production in Kurdistan will be raised from the current 330 million cubic meters to 800 million per day. This would be about 8 bcm per year. The increase in production will be completed within two years (Zhdannikov 2017a). The production could rise to 5-10 bcm per day if energy companies add production to existing gas fields productions, such as Chamachaml, Kurmala, Kurdmir and Topkhana. But all of this is based on of KRG's economic capabilities and political development.

The domestic demand in Kurdistan 5.7 tcm per year, which is not very high. However, KRG's domestic gas requirements are on the increase due to economic activities and population growth. There is also some demand for domestic gas to generate electricity to run some small factories. If the plans to further develop fields like Khurmala proceed smoothly, this would mean around 750 million additional cubic feet per day for domestic power generation in early 2020 (Mess 2017). That would solve the electric shortages in Kurdistan. Currently, the Kurdistan Region experiences on average between 18 to 20 hours of electricity daily (Rudaw 2016). Additional production could come from Genel Energy Company, a Turkish gas company, who is another investor in the Kurdistan gas fields. Genel tried to find a partner to invest \$2.5 billion in the Miran and Bina Bawi gas fields (Roberts 2016). These two fields could produce nearly 7-10 bcm annually. Genel Energy has revenue sharing contracts and gas lifting agreements for the Miran and Bina Bawi fields' development, which have yet to begin production. Genel Energy could export an initial 4bcm/year to Turkey and this looks likely to happen by

2020 (Rzayeva 2018). That would add more than 4 billion cubic meters annually (Mills 2018a).

Since KRG's gas are mostly non-associated, they can be developed more than other Iraqi gas, which is mostly associated gas. Associated gas costs more to be ready for export (Al-Khatteeb 2013). Most of the KRG's gas resources are in Sulaymaniyah, Garmian, such as Topkhana, Kurdamir and KhorMor gas fields, which are located near the boundary line between Kurdistan region and the rest of Iraq which is controlled by the Iraqi Federal Government in Baghdad. Sulaymaniyah and Garmian, which is controlled by the Patriotic Union of Kurdistan (PUK) has better relations with Baghdad and Tehran than the Kurdistan Democratic Party (PDK). Relations with Tehran are important because they could shift the political balance in the KRG. Tehran strongly supports the PUK and Gorran. Tehran could also increase influence by expanding its military presence in regions controlled by the PUK (Tanchum 2015). Iraq needs to secure at least 1bcf- 8 bcf of gas per day for future local demand (Al-Khatteeb 2013). The gas from south fields in Kurdistan could be exported to provinces under the Iraqi Federal Government to run electricity power stations. The Federal Government has already signed a contract to buy gas from Iran to fill shortages in electricity supply. However, Iraq is facing security issues in some areas along with high prices of Iranian gas. Iran has exported 1.2 bcm of gas from the Naft Mahr Karmashan station to Iraq since late June 2017.

Location favors Kurdistan as a gas export because of its distance to multiple markets. Kurdistan's Topkhana and Kurdamir gas fields are less than 150 km from Iran.

At the same time other gas fields are relatively far from the Turkish border, two such gas fields are Miran and Bani Bawi. These field are 300-400 km from the Turkish border but are owned by Genel.

4.14.2 Foreign Demand and External Issues' Scenario:

Turkey needs Kurdish gas, but they know Kurdistan's gas is surrounded by many risks, especially after Kurds in Iraq voted in support of independence in 2017, even though KhorMor could supply Turkey with 2.6 bcm/y and its gas is sweeter (Mess 2017). The Turkish Genel Company had an agreement signed with KRG to export gas to Turkey from Miran and Bina Bawi since 2013. But, according to The Turkish Ministry of Energy and Natural Resources', the official strategy for "electricity and the security of supply" deals with this by seeking to reduce the share of natural gas to electricity generation by 2023 to 30%, falling from the current 46%. The success of these projects would thin the role of the Kurdistan Regional Government (KRG) as a regional economic actor (Okumuş 2017), but Turkey still may need gas from Kurdistan due to it is cheap cost. Turkey will not pay more than \$260 per 1,000 cubic meters and it is easy to import gas from Kurdistan due to the closest station not exceeding 500 km. For example, if Turkey used 10-12 bcm of Kurdistan's gas, the additional gas of Kurdistan could export to Europe markets via TANAP. However, there are still more obstacles facing Kurdistan gas development, such as poor gas infrastructure.

Furthermore, there are external issues hampering the Kurdistan gas industry. Developing a plan for the gas industry is more complicated because of interference from Russia in Kurdistan policy. The Russian company Rosneft, signed agreements with KRG

and paid \$1 to invest in Kurdistan gas. Both Russian companies, Gazprom and Rosneft, may act as rivals. Rosneft could help or prevent development of Kurdish gas industry. To limit Kurdistan gas Rosneft could try to limit Kurdish gas as a potential competitor to Russian gas in Turkish and southeast European markets. Rosneft could also strengthen Kurdistan's gas industry by biting into the Turkish gas market. If KRG works with the Russian firm, production of gas may reach 29 bcm, with 5.7 bcm used domestically and an initial export by Rosneft of nearly 20 bcm to Turkey. This rise to 29 bcm would happen in the long term (Mills 2018b). On the other hand, one possibility is Russia will control the Kurdistan gas and oil pipeline, which could lead to weakening Europe's and Turkey's pivotal role in the Kurdistan energy sector (Ala'Aldeen et al. 2018).

Other opportunities for KRG would be through Syria in the future, although it's less likely as the route to carry Kurdistan's gas to the Mediterranean Sea. Turkey does not want Kurdistan energy to reach the Mediterranean Sea to keep the Kurds from sending their oil and gas to Europe's market without Turkish role. This could be one reason why the Turkish army launched a huge offensive in March 2017 to occupy Afrin City in northern Aleppo. The offensive cut the outlet of the Kurds to the sea. There would be another KRG corridor from the Anbar Province through Jordan. Finally, the future political outlook of Kurdistan is still difficult, as both internal and external obstacles create a disturbing picture that seems to change with each new day.

CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter provides the comprehensive results for understanding the topic of this dissertation. This study reviewed the energy policy of the KRG with special attention given to the geopolitical problems of Kurdish natural gas policy. It is hoped this research might assist policy makers in Kurdistan, energy companies interested in the natural gas sector in Kurdistan, and its neighbors.

The purpose of this dissertation is to discuss the greatest geopolitical challenges facing Kurdistan in fashioning energy policy with respect to its gas sector. Two questions have been asked. First, has KRG gas policy succeeded in developing Kurdistan's economy? Second, what are the external challenges facing KRG gas policy? The case study been applied to achieve this goal and to better understand the most geopolitical challenges faced KRG gas policy.

The study has utilized two sources of data. The first source includes interviews with parliament's member of Iraq and Kurdistan region, energy companies operating in Kurdistan and also scholars that working in energy and geopolitical field. The second source of data is comprised of articles, government documents and media. The data were analyzed using MAXQDA to categories interviews and coded data. This study has discussed in detail the geopolitical challenges natural gas by applying a qualitative

analysis, and single case study (interview analysis). The research examines the internal and external challenges facing KRG gas policy.

Analysis of the data suggests that the challenges are both internal and external to Kurdistan. Furthermore, both internal and external challenges are multifaceted which has clouded understanding by Parliament members in both Iraq and Kurdistan region, foreign oil companies, and the media.

The major internal geopolitical challenges facing Kurdistan include:

- Disputes between Erbil and Baghdad over revenues from gas sales and the question of sovereignty;
- Kurdistan's landlocked geography making export routes challenging and dependent upon transit states;
- Disputes between the two ruling political parties on how deal with gas policy because PUK is Iranian ally and PDK as closer to Turkey;
- The security situation in the region, such the risk of Islamic State attacks;
- The challenging role of the PKK in negotiating with Turkey as a transit state for gas exports.

Another reason production of natural gas in Kurdistan has not developed reliably stems from problems between the KRG and Dana Gas. The dispute between KRG and Dana Gas in the London Court of Arbitration resulted in a \$26 million dollar payout from KRG to Dana Gas. Payment was compensation for suspended work in the KorMor gas field.

Other challenges facing Kurdistan include the quantity of gas production, which is still at the same level since the start of gas production as a result of several factors. Most notable of these challenges is combination of financial crisis and security concerns, but also the influx of some 2 million refugees to the Kurdistan region. The combination of financial and security problems mentioned above has had a significantly negative impact on the production of natural gas in Kurdistan.

In addition, the transportation and storage infrastructure is poor in Kurdistan. Kurdistan has only 176 km of pipeline to transport gas from the KorMor field, Kurdistan's only producing field, to power plants in Erbil and Sulaymaniyah. The KorMor field has a production capacity of 8.5 mcm /d. This amount of gas can only support a small proportion of a particular region's electrical needs. Further, energy demand will only increase with the growing population of the province. The province's population in recent years has grown as a result of the improvement in economic situation. The gas infrastructure in Kurdistan needs to be developed but KRG lacks the resources to develop it on its own. The development of the infrastructure needs billions of dollars just to expand the construction of a pipeline from the Miran gas field to the Turkish border needs \$100 million according interview with (Saad 2016) the junior adviser to KRG.

Another major issue facing the Kurdistan region government is its lack a full sovereignty. KRG has local sovereignty and some regional sovereignty. Evidence of the region's increasing sovereignty is demonstrated by multiple superpowers opening consulates in Erbil. However, this does not mean the government has all of the privileges

that sovereignty confers. For example, the KRG is unable to request loans from countries or NGO's like The World Bank. In recent years KRG has developed a poor reputation associated with non-payment of wages to energy companies operating in the region. In addition to a security problem faced energy companies that were push some of them withdrawal in upstream and downstream in Kurdistan, such as the giant company ExxonMobil in the fields of Basheqa, Qarahanjeer, and Betwata. Other issues facing the natural gas industry are the most natural gas in Kurdistan in terms of quality is not sweet gas except KorMor field but two gain natural gas field Miran Bina Bawi contains impurities and toxic gases at a very high rate compared to the rest of the quality of gas in Iraq in Basra and Anbar.

The main external geopolitical challenges facing Kurdistan included: Kurdistan's policies toward neighbors like Iran and Turkey as well as the growing role of Russia in influencing gas exports in the region.

In the short term Erbil's energy policy is currently attractive to foreign companies. The presence of important global actors like Russia and the United States suggests there is clear development of bilateral energy relations. But still there is a great desire for the government of Kurdistan after filling local needs for generating electricity. But the inability of the central government and the KRG to agree concerning disputed areas, type of contracts signed with companies, and sharing of revenues, prevents the government from building gas infrastructure.

Despite that the fact that there is a signed contract in 2013 between Genel Energy Turkish Company and Ministry of Resources in Kurdistan for 50 years to export 10

million cubic meters by 2017 as the first stage. An agreement with the Russian company Rosneft contracts for the export 20 billion meters of by the end of 2020, the issue with Rosneft is that KRG took an advance of \$1 billion (Bierman and Sergie 2017) to be repaid not with cash but rather in the form of cheap gas.

Another challenge facing the gas industry in Kurdistan is its location as a landlocked country surrounded by countries that have historically been hostile to the independence wishes of the Kurds. Countries such as Turkey and Iran have different agendas in the region and therefore have affected Kurdistan in varying ways. Currently, the only viable way for Kurdistan to export gas to Europe is through Turkey. An end to the Syrian civil war and the opening of a pathway to the Mediterranean Sea could create possibilities to export from the Kurdistan Region to Europe through Kurdish controlled areas in Syria but this prospect is still highly uncertain (“Iraqi Kurdistan Could Export Gas to EU by 2019: Envoy” 2016). Since the AKP came to power in Turkey, there has been an improvement in economic cooperation and also somewhat political relationship with the KRG. This combined with the strained relations between Turkey and Russia in the wake of the downing of a Russian warplane by Turkish forces in 2016, could create opportunities for further developing relations between KRG and Turkey to counter a high reliance of Turkey on Russia for gas.

A further intractable problem is the presence of irregular armed groups in disputed areas west of Kirkuk, where some of the most important gas fields are located. In 16 October 2017 Iraqi forces and the PUF army attacked Kirkuk and Mosul and re-

gained control of the disputes areas. They also re-gained control over Mosul, where the Ain Zala and Batma oil fields are located.

In addition, the presence of guerrilla groups against the Turkish and Iranian government, including the PKK and Pjak, may threaten gas exporting to markets. These groups threaten gas exporting facilities. For example, the military commander of PKK announced the day after signed an agreement in 2013 between Erbil and Ankara to export Kurdistan's gas to Turkey that they planned to target this pipeline because the contract allegedly benefitted Erdogan, the PKK's main enemy.

On the other hand, the popular Shiite armed groups threatened KRG that they will not accept oil and gas resources from disputed areas because these fields should be controlled by central government. The referendum in the September of 2017 provided Shitte groups with pretext to regain control of the disputed areas that were under KRG control. Control of disputed areas by these groups means controlling more gas and oil wells and weakening the Kurdish government.

But in spite of all these obstacles, the KRG is continuing to sign more gas and oil agreements with companies. The last of these promising agreements to develop, extract, and export hydrocarbon resources was with Rosneft and spans 20 years. With this agreement Russia is trying to influence the energy policy of KRG because Russia does not want that the emergence of a strong exporter that competes with Russian gas in Turkey and European markets. According to Russian Energy Minister Alexander Novak talked to Kurdistan 24 tv: we will establish two gas pipelines from Kurdistan to Black sea through Turkey with capacity of each will be 15,70 bcm in 2020 (Ali 2017).

Furthermore, Kurdistan has had to deal with internal problems, such as conflict between PUK and PDK authority and controlling more resources, and political conflicts between opposing parties that rules region. This is in addition to various external pressures from Turkey and Iran and occasional political tensions with the central government in Baghdad after referendums held in September 25, 2017.

Since the energy of Kurdistan's policy is very much interconnected with geopolitical developments due to its dependence on export its natural gas on neighbor's roads. It is best for KRG to improve relations with Baghdad from all aspects of political and economic first. To improve the gas industry and export through Baghdad and solve all problems related to the types of contracts and the distribution of revenues of gas and oil. It is also important to improve the internal political situation and to reconcile with all parties including the opposition in order to promote and develop energy policy through apply the law release from Kurdistan parliament related to the energy sector. Second, it is also necessary to improve its commercial and political relations with neighboring countries, also with Russia, America and the Europe united because without improved relations with neighboring countries cannot overcome its geographical location closed.

Nevertheless, the internal political variability between Kurd, Arab Sunni, and Arab Shia, and the activities of PUF in Iraq have the likely to risk the stability of KRG and the Iraq which may affect the future gas export opportunities to international market. KRG should redouble efforts to reduce the geopolitical risks affecting energy. The linkage of the natural gas networks of Kurdistan Iraq, Iran and Turkey, would provide useful export paths for natural resources but also serve to improve political relationships.

The broader geopolitical importance of Kurdistan gas remains unexplored. This dissertation specifically provides an in depth look into the complexities arising from both Iraq's internal politics and powerful external actors seeking to interfere with the future of its gas sector for geopolitical purposes. Also, this research makes empirical contributions to the literature on the geopolitical challenges in general, and on the Kurdistan region's gas sector challenges in specific. The findings of the research are significant, given that few previous studies on the broader geopolitical literature have examined the Kurdistan energy sector. The implications of this research may be useful in helping new KRG's gas policy to avoid the challenges.

5.2 Recommendations for Kurdistan Gas Sector

Based on the findings of my dissertation research, I propose the following policy recommendations to help develop the gas sector in Kurdistan:

1. The conflicts surrounding gas and oil need solutions firmly positioned on solid legal and political grounds. Relevant provisions of the Iraqi constitution should be fully implemented expeditiously. That would lead the KRG and Iraqi central government to work together to develop the energy sector, such as by setting up an Energy Council of gas and oil.
2. Building up a petrochemical industry would create new job opportunities for people. Other domestic needs could be addressed by utilizing gas to generate electricity to meet local demand, while exporting surplus gas to other provinces under Bagdad's authority.

3. Fields close in proximity to Iraq, such as Kurdmir and Topkhana, should be utilized to supply Iraq rather than importing expensive gas from Iran.
4. A national Kurdish Energy Company for upstream and downstream processing and for marketing, such as the Iraqi Oil Marketing Company (SOMO), should be established.
5. Creating new and expanding existing gas infrastructure, such as LNG gas storage and terminal for growing LNG market expectation in the world markets, should be a high priority.
6. A specific fund to hold money from gas and oil sale to develop non – oil and gas sectors should be set up.

In addition to the above concrete proposals, the KRG needs to devise a plan B in order to export gas in the future from the Mediterranean Sea to the Red Sea through Syria or Jordan, which would make KRG more independent. A successful plan B requires KRG to have friendly relations with Baghdad. A good relationship would be built on allowing Kurdistan to export gas and oil to Asia markets through the Arab Gulf, and KRG allowing resource exports from the rest of Iraq to Turkey. One example of a cooperative partnership would be a joint effort to export gas using Iraq's central State Organization for Marketing of Oil (SOMO), which the KRG is currently independent of.

This depends less on foreign companies than it does on cooperation with Baghdad. For example, Rosneft's energy projects in Kurdistan may not be motivated solely by economic gains but rather they also may be aimed at strengthening Russia's strategic position in the Middle East through energy relations. KRG should not use gas as

political items rather than economic. In the past ten years that KRG experiences in the oil and gas sector were not successful, the failure of its policy got KRG into too many economic problems with Baghdad.

Transparency here is vital. The revenue generated from the formal sale of KRG's oil and gas should be disclosed to the parliament of Kurdistan. An effective role of parliament to increase transparency in revenue collection and spending, and encouraging political and social cohesion in the Kurdistan region would be to establish an independent auditor's office. It will build trust between the government and the public. If KRG has a policy in a gas sector, then the gas sector would be more important than the oil, due to the appraisal of the oil reserve being lower than what international companies expected. Finally, KRG follows the best market for selling gas. KRG should not mix national-political interests with economic interests, and they should cooperate with all willing parties to develop the gas.

5.3 Limitations of the Dissertation

The methodologies used here had two major limitations: First, limited data is available, especially the lack of data published by Ministry of natural resources regularly on secret agreements signed with international companies. A second limitation stems from a lack of transparency. The lack of transparency includes the KRG not disclosing all details about oil and gas revenues.

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APPENDIX A

LIST OF ABBREVIATIONS

KRG	Kurdistan Regional Government
ISIS	The Islamic State Of Iraq And Al-Sham
PUK	Patriotic Union Of Kurdistan
PDK	Kurdistan Democratic Party
PKK	Kurdistan Workers' Party
GORRAN	Gorran Movement
BCM	Billion Cubic Meters Of Natural Gas
PJAK	Kurdistan Free Life Party
ROJAVA	Democratic Federation Of Northern Syria
MMSCFD	Million Standard Cubic Feet Per Day
BOPD	Barrels Of Oil Per Day
TANAP	Trans-Anatolian gas pipeline
TCF	Trillion Cubic Feet

APPENDIX B

MAIN GAS FIELDS IN KURDISTAN REGION CURRENTLY

#	Blocks	Companies	Location	Status
1	Chemchemical	Pearl Petroleum	Sulaimanya	Open
2	KhorMor	Pearl Petroleum	Sulaimanya	Production
3	Miran	Genel Energy	Sulaimanya	Production
4	Bina Bawi	Genel Energy	Erbil	Operation
5	Kurdamir	Repsol	Sulaimanya	Exploration
6	Sumail	DNO ASA	Duhok	Production
7	Khurmala	KAR Group	Erbil	Production
8	Topkhana	Talisman	Sulaimanya	Exploration
9	Akri-Bijeel	MOL	Duhok	Operation
10	Chia Surkh	Genel Energy	Sulaimanya	Operation