After the Nuclear Deal

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Research on the EU-Iran Gas Relationship in the Post-Sanctions Era

Master Thesis
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Research on the EU-Iran Gas Relationship in the Post-Sanctions Era

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Preface

Before I had the module "Europe and the new geopolitics of oil and gas", I was not familiar with energy politics. I knew that fossil fuels were important for the economies of different states, but I knew nothing about "pipeline politics" and the existence of LNG. Because of the module "Europe and the new geopolitics of oil and gas" I got interested in the EU's strategy on diversifying away from Russian gas. Then, I read about the JCPOA, the Nuclear Deal, and that one of the consequences of that agreement has been that Iran is allowed to sell piped gas and LNG to the EU. After that I had read about the Nuclear Deal, I decided to choose the EU-Iran gas relationship after the Nuclear Deal as the topic of my master thesis.

Because of this research, I have learned that pipeline gas and LNG are two different dimensions in the world of energy politics. I have also learned what the state of affairs is in the EU-Iran gas relationship after the Nuclear Deal.

I would like to thank my supervisors Ivo Hernandez from the WWU Münster and Shawn Donnelly from the University of Twente for their guidance that they have given to me, and I would like to thank the WWU Münster for offering the module "Europe and the new geopolitics of oil and gas", because without this module I would never have had the inspiration to choose for this master thesis topic.

Abstract

From the Implementation Day of the JCPOA on, Iran is allowed to sell natural gas to the EU and the EU is allowed to buy and import natural gas from Iran.[2]
The EU wants to be less dependent on importing gas from Russia.[3] After the Ukraine-Russia gas crisis of 2006, the EU started to really prioritize the diversification of its gas supplies.[4] The European Commission put forward the Southern Gas Corridor initiative in 2008 after that the EU's energy security concerns had appeared because of the first Russian-Ukrainian-European natural gas crisis in 2006.[5] In the EU's commission policy document of 2008, in which the Southern Gas Corridor Strategy was introduced, it was also mentioned that "Iran should represent a further significant supply source for the EU, when political conditions permit".[6] In the year 2008, the European Commission also mentioned that the import of liquefied natural gas (LNG) is important for the diversification of the EU's energy supplies.[7] The EU wants to increase its LNG imports and improve its LNG storage capacity in order to make the EU gas system more flexible and diverse.[8] So, Russia has the capability and the power to significantly disrupt gas supplies to the majority of Central- and Eastern European EU member states[9] and the EU wants to counter this relative power of Russia through connecting Iranian gas to the Southern Gas Corridor's pipeline network.[10] One of the other ways through which the EU wants to counter this relative power of Russia, is importing Iranian LNG.[11] **Through both its foreign policies on importing piped Iranian gas and Iranian LNG, the EU is seeking for relative gains and not for absolute gains.**
In accordance with its Resistance Economy doctrine, Iran will choose for pipeline routes that are the most economically **and politically suitable**[12] and exporting piped gas to the EU via Turkey is not politically suitable for Iran, because Iran and Turkey are regional rivals.[13] In accordance with its Resistance Economy doctrine, Iran wants to increase its LNG export capability because it is advantageous for Iran's diversification of its gas export routes and destinations, and it gives Iran a **strategic flexibility during a new possible era of sanctions in the future**.[14] **Iran's preference to export LNG to the EU**[15] **and Iran's preference to not export piped gas to the EU** is in line with Iran's Resistance Economy goal of having **strategic flexibility** during a new possible era of sanctions in the future.[16] **Through both its foreign policies on exporting piped gas to the EU and exporting LNG to the EU, Iran is seeking for relative gains, and not for absolute gains after the nuclear deal.**

[2] Modrall, 2016, p.40.
[3] European Commission, 2014, p.2.
[4] Tagliapietra and Zachmann, 2015, p.2.
[5] Tagliapietra and Zachmann, 2015, p.2.
[6] European Commission, 2008, p.4.
[7] European Commission, 2008, p.5.
[8] European Commission, 2016, p.2.
[9] Yafimava, 2015, p. 2.
[10] European Commision, 2014, p.2, p.16.
[11] Houshisadat, 2015, p.470-471.
[12] Ünal, 2016, p.26.
[13] Norman, 2016.
[14] Ünal, 2016, p.8.
[15] Houshisadat, 2015, p.466.
[16] Ünal, 2016, p.8.

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List of abbreviations

BCM: Billion Cubic Meters

JCPOA: Joint Comprehensive Plan of Action

LNG: Liquefied Natural Gas

NIGC: National Iranian Gas Company

NIGEC: National Iranian Gas Exporting Company

NIOC: National Iranian Oil Company

TCM: Trillion Cubic Meters

Chapter 1: The introduction

1.1 An introduction about the topic of this master thesis

The EU wants to be less dependent on importing gas from Russia.[17] After the Ukraine-Russia gas crisis of 2006, the EU started to really prioritize the diversification of its gas supplies. [18] In 2008, the European Commission made clear that EU gas imports had a share of 61% in the total EU gas consumption and that 42% of the EU gas imports came from Russia, 24% from Norway, 18% from Algeria and 16% from other countries.[19] In addition, the European Commission made clear in this policy document that the EU needs to diversify its gas supplies.[20] The European Commission put forward the Southern Gas Corridor initiative in 2008 after that the EU's energy security concerns had appeared because of the first Russian-Ukrainian-European natural gas crisis in 2006.[21] The European Commission mentioned that "a southern gas corridor must be developed for the supply of gas from Caspian and Middle Eastern sources, which could potentially supply a significant part of the EU's need".[22] The supply from Caspian and Middle Eastern sources could the EU make less dependent on importing Russian gas. The 2014 Ukraine crisis ensured that energy security concerns are again top priorities on the EU agenda, after those EU policymakers had realized that the threat of supply interruptions from the EU's main natural gas supplier, Russia, threatens the EU's energy supply.[23]
In the EU's commission policy document of 2008, in which the Southern Gas Corridor Strategy was introduced, it was also mentioned that "Iran should represent a further significant supply source for the EU, when political conditions permit"[24]. In the European commission's policy document on the 'European Energy Security Strategy', the European Commission mentioned that in the longer term, a country like Iran, *"If conditions are met to lift the sanctions regime",* "could also significantly contribute to the enlargement of the Southern Gas Corridor"[25]. So the EU wants to import piped Iranian gas via the Southern Gas Corridor.
In the year 2008, the European Commission also mentioned that the import of liquefied natural gas (LNG) is important for the diversification of the EU's energy supplies.[26] The EU wants to increase its LNG imports and improve its LNG storage capacity in order to make the EU gas system more flexible and diverse.[27] For the EU, LNG will remain and grow as a large source of diversification in the years ahead.[28] So, the EU wants to import both piped gas and

[17] European Commission, 2014, p.2.
[18] Tagliapietra and Zachmann, 2015, p.2.
[19] European Commission, 2008, p.4.
[20] European Commission, 2008, p.4.
[21] Tagliapietra and Zachmann, 2015, p.2.
[22] European Commission, 2008, p.4.
[23] Tagliapietra & Zachmann, 2015, p.2
[24] European Commission, 2008, p.4.
[25] European Commission, 2014, p.16.
[26] European Commission, 2008, p.5.
[27] European Commission, 2016, p.2.
[28] European Commission, 2014. p.15.

LNG in order to increase its energy security through gas supply routes diversification.[29] In addition, the EU wants to increase its energy security through importing both piped Iranian gas[30] and Iranian LNG,[31] because the nuclear deal of July 2015 (the JCPOA) allows this.[32]

Russia has the capability and the power to significantly disrupt gas supplies to the majority of Central- and Eastern European EU member states.[33] The EU wants to reduce its energy dependence on Russia and increase its energy independence from Russia through importing Iranian pipeline gas via the Southern Gas Corridor.[34] One of the other ways through which the EU wants to decrease its dependence on Russian gas and increase its energy independence from Russian gas is importing Iranian LNG.[35]So, the EU wants to diversify away from Russian gas in order to increase its energy independence from Russia (in order to reduce its energy dependence on Russia). **Through both its foreign policies on importing piped Iranian gas and Iranian LNG, the EU is seeking for relative gains and not for absolute gains.**

As will be explained in chapter 2, Iran is not aiming the EU for the export of its pipeline gas because of its regional rivalry with Turkey, the Turkish transit fee demands, Iran's degraded energy sector (Iran needs much foreign investment for the upgrading of its gas export infrastructure) and Iran is claiming that the EU is not attractive for the export of its pipeline gas because of the current gas prices in Europe. As will be explained in chapter 2, Iran's current preference to not export piped gas to the EU is in accordance with its Resistance Economy Doctrine.

Iran is aiming Europe as a significant destination for Iranian LNG export (this will be explained in chapter 3).[36] Iran views LNG exports to the EU as a contemporary priority.[37] As will be explained in chapter 3, Iran's preference to export LNG to the EU is in accordance with its Resistance Economy doctrine.

Through the Resistance Economy doctrine, Iran wants to minimize the damage that is caused by countries that impose sanctions on Iran and Iran wants to less dependent on those countries that impose sanctions on Iran.[38] In other words, by means of the Resistance Economy doctrine, Iran wants to overcome pressures from Western states' sanctions and economic pressure on other states.[39] Through the Resistance Economy doctrine, Iran is aiming to be **as independent as possible** from other (western) countries in connection with attaining economic growth and prosperity.[40] Iran's preference to export LNG to the EU[41] and Iran's preference to not export piped gas to the EU is in line with Iran's Resistance Economy goal of having **strategic flexibility** during a new possible era of sanctions in the future. [42]

[29] European Commission, 2016, p.2.
[30] European Commission, 2008, p.4; European Commission, 2014, p.16.
[31] European Commission, 2016, p.2; European Commission, 2008, p.4.
[32] European Commission, 2014, p.16; European Commission, 2016, p.11.
[33] Yafimava, 2015, p. 2.
[34] Ünal, 2016, p.32.
[35] Houshisadat, 2015, p.470-471.
[36] Houshisadat, 2015, p.466.
[37] Shokri Kalehsar, 2016a, p.546.
[38] Ünal, 2016, p.13.
[39] Piran and Dorche, 2016, p.648.
[40] Piran and Dorche, 2016, p.647
[41] Houshisadat, 2015, p.466.
[42] Ünal, 2016, p.8.

Through both its foreign policies on exporting piped gas to the EU and exporting LNG to the EU, Iran is seeking for relative gains, and not for absolute gains after the nuclear deal.

In July 2015, the Joint Comprehensive Plan of Action, the nuclear agreement, was agreed upon between the P5+1 countries and Iran. The most important achievement of the nuclear deal of July 2015 has been that it limits both the uranium enrichment and plutonium reprocessing routes to nuclear armament which were at disposal for Iran.[43]

On January 16, 2016, the Implementation Day of the JCPOA took place, after that the International Atomic Energy Agency had ascertained that Iran had complied with certain nuclear-related rules of the JCPOA.[44] From the Implementation Day of the JCPOA on, Iran is allowed to sell gas to the EU and the EU is allowed to buy and import gas from Iran.[45]

The EU still wants to be less independent on importing Russian gas, and theoretically, Iran could contribute to the realization of that goal. Iran is now a potential gas supplier for the EU.

This thesis is looking at to what extent the EU's foreign policies on importing piped Iranian gas and Iranian LNG is motivated by power politics (relative gains) or by an prosperity and economic welfare approach (absolute gains). This thesis is also looking at to what extent the Iran's foreign policies on exporting piped gas and LNG to the EU is motivated by power politics (relative gains) or by an prosperity and economic welfare approach (absolute gains).

1.2: The research question

The research question of this master thesis is:

To what extent are absolute gains and relative gains sought by the EU and Iran by means of their gas relationship after the accomplishment of the JCPOA in July 2015?

1.3: The research design

This research has the case study as a research design. Yin[46] defines in a clearly manner what a case study is: "A case study is an empirical enquiry that investigates a contemporary phenomenon (the "case") in depth and within its real-world context". The contemporary phenomenon upon which the focus will be in depth is: The EU-Iran gas relationship after the Joint Comprehensive Plan of Action Agreement of 14 July 2015**.**

A case study will be conducted into both the Iran's and the EU's preferences with regard to their gas relationship after the JCPOA of July 2015. A case study will be conducted into Iran's preferences with regard to the possibilities to export piped gas and LNG to the EU and a case study will be conducted into the EU's preferences with regard to the possibilities to import piped Iranian gas and Iranian LNG.

In addition, when the EU's motivations (power motivations or economic motivations) behind the concerned EU's preferences have been ascertained, then it can be determined whether the

[43] Vishwanathan, 2016, p.10.
[44] Katzman and Kerr, 2017, p.8-9.
[45] Modrall, 2016, p.40.
[46] Yin, 2014, p.16.

EU is seeking for both relative gains and absolute gains. When Iran's motivations (power motivations or economic motivations) behind the concerned Iran's preferences have been ascertained, then it can be determined, whether Iran is seeking for both relative gains and absolute gains.
The two relevant dimensions (the pipeline dimension and the LNG dimension) of the EU-Iran gas relationship will be addressed in this research, so that this research on the EU-Iran gas relationship will have content validity. At the beginning of every chapter, it will be mentioned which dimension(s) will be addressed in the concerned chapter. In paragraph 1.5.2.1, it will be explained what the differences are between the pipeline dimension and the LNG dimension.
This case study will be conducted through the collection of the following kinds of data: EU policy documents, scientific articles and press releases. EU policy documents will be used, in order to ascertain what the EU's policy goals are in the field of EU energy security. Through reading the European Institutions' policy documents, it will be ascertained what the EU's official goals are with regard to increasing its energy security and with regard to importing Iranian gas. Through studying the European Institutions' policy document insights can be gained about the EU's foreign policy on importing Iranian gas. Another advantage of using research data such as EU policy documents is that these policy documents provide straightforwardly information about the EU's official goals in the field of EU energy security. These EU policy documents are not interpretations from other authors about what the EU strives for or not. Besides reading policy documents that have been written by the European Institutions, scientific articles that have been written by various scientists will also be read. Various scientific articles will be read and used in this research, in order to find both the EU's and Iran's preferences with regard to their gas relationship after the JCPOA of July 2015. The JCPOA is a very recent treaty. The EU-Iran post-sanctions gas relations also depend on present developments. Press releases will be used in order to follow the current developments on the EU-Iran gas relations.

1.4: Theoretical framework

The concept of absolute gains is a component of **the paradigm of liberalism**[47] and the concept of relative gains is a component of **the paradigm of realism**.[48] So with using the analytical concepts of absolute gains and relative gains, automatically, the paradigms of liberalism and realism are also used in this research in order to explain the behavior and preferences of Iran and the EU with regard to their gas relationship. In this part about the theoretical framework, the connections of both liberalism and realism with energy resources will be explained, the main assumptions of these paradigms will be explained and both world views will be contrasted with each other.

[47] Powell, 1991, p.1303.
[48] Powell, 1991, p.1303.

1.4.1: the connection between energy resources and liberalism

In connection with energy resources, energy exporters want to sell the commodity of energy and generate revenues[49]. Furthermore, in the European Energy Security Strategy that has been written by the European Commission in 2014, it is mentioned that the EU wants to increase its energy security through gas supply diversification for its overall economic welfare.[50] Obviously, energy resources have an economic welfare aspect.
According to the liberal worldview, states make decisions based upon their judgments of their own welfare, not that of others.[51] The concept of absolute gains is used within the framework of liberalism and it presupposes that states focus on their absolute level of economic welfare.[52] Given that economic welfare is sought through the selling of energy[53] and through the consumption of energy[54], and given the fact that economic welfare is a central concept within the paradigm of liberalism[55], the liberal paradigm will be applied to the EU-Iran gas trade case.

1.4.2.: the paradigm of liberalism

According to the liberal worldview, states make decisions based upon their judgments of their own welfare, not that of others.[56] So, the paradigm of liberalism assumes that states want to obtain absolute gains.[57] The concept of absolute gains is used within the framework of liberalism and it presupposes that states focus on their absolute level of economic welfare.[58] According to liberalism, states are indifferent to the gains of other actors.[59]
Every trade has linked with it the costs of the trade itself (transaction costs): the costs of identifying issues,[60] the costs of negotiating the conditions of the trade[61], the costs of monitoring and imposing the conditions of the trade, etc.[62] These costs are labeled as transaction costs.[63]
According to liberalism, states pursue economic interdependence in the international relations, and states are willing to cooperate with each other based on the economic interdependence.[64] The paradigm of liberalism assumes that if there are shared interests

[49] Jonsson, Johansson, Månsson, Nilsson, Nilsson and Sonnsjö, 2015, p.49.
[50] European Commission, 2014, p.2.
[51] Mowle, 2003, p. 567.
[52] Powell, 1991, p.1304.
[53] Jonsson, Johansson, Månsson, Nilsson, Nilsson and Sonnsjö, 2015, p.49.
[54] European Commission, 2014, p.2.
[55] Powell, 1991, p.1304.
[56] Mowle, 2003, p. 567.
[57] Powell, 1991, p.1303.
[58] Powell, 1991, p.1304.
[59] Powell, 1991, p.1303.
[60] Moravscik, 1993, p.508.
[61] Bell, 2010, p.1.
[62] Bell, 2010, p.1.
[63] Bell, 2010, p.1.
[64] Keohane, 2005, p.7.

between states then there is the possibility of inter-state cooperation.[65] At the international political level, cooperation can stimulate positive-sum results.[66]
Cooperation takes place, when entities (whether individuals or organizations) adjust their behavior to the actual or anticipated preferences of other entities, through a process of policy coordination. [67] If there are not attempts made by entities to adapt their policies to the objectives of other entities then there is discord: a context in which entities view each other's policies as hindering the achievement of their goals.[68]
So the paradigm of liberalism also assumes that cooperation is very important in a world of economic interdependence and that shared economic interests create a demand for institutions and rules.[69] Institutions are not only formal organizations with headquarters buildings and specialized staffs, because institutions are also defined as "recognized patterns of practice around which expectations converge".[70] Institutions are also defined as "persistent and connected sets of rules, formal and informal, that prescribe behavioral roles, constrain activity, and shape expectations."[71] According to liberalism, institutionalized patterns of cooperation take place in order to facilitate cooperation (in order to reduce the transaction costs of cooperation).[72]
Multilateralism is about "the practice of coordinating national policies in groups of three or more states, through ad hoc arrangements or by means of institutions"[73]. Through multilateralism, coordination problems are managed and cooperation problems are resolved.[74] Multilateralism is a good instrument for addressing high transaction costs including the costs of negotiating and enforcing agreements.[75] Multilateral agreements stimulate the achievement of absolute gains.[76]

1.4.3: the connection between energy resources and realism

According to the paradigm of realism, the main concerns of states are power and security.[77] The paradigm of realism regards energy resources as power elements.[78] Power resources are the means by which an actor can influence the behavior of other actors.[79] Realism also expects that power resources provide leverage (negotiating advantages) in negotiations.[80] Given that power resources provide leverage in negotiations, power resources also influence bargaining outcomes.[81] The paradigm of realism has the assumption that the states with more

[65] Keohane, 2005, p.7.
[66] Dannreuther, 2010, p.6.
[67] Keohane, 2005, p.51-52.
[68] Keohane, 2005, p.52.
[69] Keohane, 2005, p.7.
[70] Keohane, 2005, p.8.
[71] Keohane, 1990, p.732.
[72] Keohane, 2005, p.7.
[73] Keohane, 1990, p.731.
[74] Ruggie, 1992, p.567.
[75] Thompson and Verdier, 2014, p.16.
[76] Keohane, 1990, p.742.
[77] Grieco, 1988, p.488.
[78] Česnakas , 2010, p.30.
[79] Dahl, 1976, p.37.
[80] Dinar, 2000, p.387.
[81] Dinar, 2000, p.387.

power resources (the strongest states) will prevail in international negotiations.[82] According to realism, international bargaining outcomes are tended to be determined by the preferences of the states that have more power resources (the more powerful states).[83]

Energy resources play an important role as power elements in states' foreign policies.[84] According to the paradigm of realism, energy resources are used in foreign relations because states want to increase their influence and power in foreign countries[85] and energy resources are used to achieve energy independence.[86] According to the paradigm of realism, balancing is about that states want to balance in all sorts of ways against other states in order to maximize their independence (including energy independence/energy security).[87] For example, the European Commission stated in the European Energy Security Strategy that "The European Union's prosperity and *security* hinges on a stable and abundant supply of energy"[88]

A state's amount of energy resources determines partially a state's economic capabilities. For example, if a state has much natural resources, then the state's industrial sector benefits from this, and if a state has much natural resources, then a state is relatively less dependent on other countries that export energy.

Capabilities are important with regard to a coalition's power or a state's power. In connection with capabilities, characteristics like territory, population, *material resources*, industrial capacity, armed forces and military potential are important.[89] With other words described, a coalition's or a state's power has different components. There is the military, technological, economic and demographic component. [90]

Energy is an important material resource.[91] Energy is an important component for a state's material capabilities or for a coalition of states' material capabilities.[92] Power from energy resources establishes options to enlarge or transform state power into other areas: industrial, financial, military, and diplomatic.[93] Strengthened energy power increase states' capabilities to utter their interests abroad.[94] Furthermore, realism also expects that power resources provide leverage in negotiations.[95] According to realism, international bargaining outcomes are tended to be determined by the preferences of the states that have more power resources (the more powerful states).[96]

[82] Dinar, 2000, p.387.
[83] Dinar, 2000, p.387.
[84] Česnakas , 2010, p.30.
[85] Česnakas , 2010, p.30,42.
[86] Ziegler, 2006, p.8.
[87] Layne,1989, p.19, p.29, p.40; Česnakas, 2010, p.42.
[88] European Commission, 2014, p.2.
[89] Chatterjee, 1972, p.51.
[90] Brooks and Wohlforth, 2005, p.511.
[91] Dannreuther, 2010, p.3.
[92] Česnakas , 2010.
[93] Česnakas, 2010, p.38.
[94] Česnakas, 2010, p.38.
[95] Dinar, 2000, p.387.
[96] Dinar, 2000, p.387.

Given the fact that according to realism, energy resources are power elements[97] and that energy resources are an important material resource and an important component of a state's power,[98] the paradigm of realism will be applied to the EU-Iran gas trade case.

1.4.4: the paradigm of realism and its assumptions

According to the paradigm of realism, the main concerns of states are power and security.[99] States want to have as much power as possible in order to assure survival.[100] The international political system (the inter-state level) is characterized by a state of anarchy.[101] According to realism, international institutions of cooperation are weak, because the international anarchy stimulates competition and conflict among states.[102] In the anarchical international political system, there will always be a conflict of interests.[103]
According to realism, states are mainly occupied with **relative gains.[104] A state's utility is a function of its relative power.[105] States are mainly concerned about their relative position towards other states.[106] States are concerned that other states might attain relatively more gains from cooperation than themselves.[107] So, international collaboration is very restricted according to the worldview of realism, because states are concerned about how well they perform relative to each other rather than how well they perform themselves.[108]**
All the theories of realism have the core assumption that there is a domination of material capabilities.[109] Military power has been depended on economic power, from which it is derived since the industrial revolution.[110] From this interconnectedness between military and economic power it can be derived that the economic and military capabilities are important for a state's position in the international system. With other words described, both the economic and military capabilities are important for a state's power or for the power of a coalition of states. In connection with capabilities, characteristics like territory, population, *material resources,* industrial capacity, armed forces and military potential are important.[111] Energy resources are power elements.[112] Energy resources are an important material resource and an important component of a state's power.[113] So, according to the paradigm of realism, states seek energy as a material resource, and states cooperate on the basis of relative gains.

[97] Česnakas, 2010, p.30.
[98] Dannreuther, 2010, p.3.
[99] Grieco, 1988, p.488.
[100] Česnakas , 2010, p.34-35.
[101] Dannreuther , 2010, p.2.
[102] Grieco, 1988, p.485.
[103] Keohane, 2005, p.7.
[104] Powell, 1991, p.1303.
[105] Powell, 1991, p.1303.
[106] Grieco, Powell and Snidal, 1993, p.729.
[107] Grieco, Powell and Snidal, 1993, p.729.
[108] Snidal, 1991, p.387.
[109] Česnakas, 2010, p.32.
[110] Posen, 2009, p.348.
[111] Chatterjee, 1972, p.51.
[112] Česnakas, 2010, p.30.
[113] Dannreuther, 2010, p.3.

1.4.5: contrasting liberalism with realism

The paradigm of liberalism can be contrasted with the paradigm of realism. Through the following table, both paradigms are contrasted with each other.

Table 1: contrasting realism with liberalism

Realism	Liberalism
The main concerns of states are power and security.[114]	The main concern of states is economic welfare.[115]
Realism emphasizes the *conflict of interests* between states in an anarchical international political system.[116] According to realism, states accentuate the possibilities of conflict.[117] In the anarchical international political system, there will always be a conflict of interests.[118]	Liberalism emphasizes *that there is economic interdependence* at the international political level and states are willing to cooperate with each other based on the economic interdependence.[119] According to liberalism, states accentuate the possibilities of cooperation.[120] Anarchy can be overthrown and military conflict can be avoided.[121]
According to realism, institutionalized patterns of cooperation take place because states seek for power through those institutionalized patterns of cooperation.[122]	According to liberalism, institutionalized patterns of cooperation take place in order to facilitate cooperation.[123]
From the realist perspective, reducing dependence on Russia with a security concern and focus is the main reason for the EU to import Iranian gas.	From the liberal perspective, better price and/or increased reliability of gas supplies are the main reasons for the EU for diversifying to include Iranian gas into the energy portfolio.
According to realism, states are mainly occupied with relative gains.[124] A state's utility is a function of power.[125] States are mainly concerned about their relative position towards other states.[126]	According to liberalism, states are exclusively focused on the pursuit of absolute gains.[129] The paradigm of liberalism assumes that states want to obtain *absolute gains*.[130] States are indifferent to the gains

[114] Česnakas, 2010.
[115] Powell, 1991, p.1304.
[116] Keohane, 2005, p.7.
[117] Powell,1991, p.1303.
[118] Keohane, 2005, p.7
[119] Keohane, 2005, p.7.
[120] Powell, 1991, p.1303.
[121] Dannreuther, 2010, p.5.
[122] Keohane, 2005, p.7.
[123] Keohane, 2005, p.7.
[124] Powell, 1991, p.1303.
[125] Powell, 1991, p.1303.
[126] Grieco, Powell and Snidal, 1993, p.729.

States are concerned that other states might attain relatively more gains from cooperation than themselves.[127] So, international collaboration is very restricted according to the worldview of realism, because states are concerned about how well *they perform relative to each other rather* than how well they perform themselves.[128]	of other actors.[131] States make decisions based upon their judgments of their own welfare, not that of others.[132] "A state's utility depends solely on the absolute level of economic welfare it attains".[133]The concept of absolute gains is used within the paradigm of liberalism and it presupposes that states focus on their *absolute level of economic welfare*.[134]
The paradigm of realism expects that relative gains are sought by the EU and Iran by means of their gas relationship after the accomplishment of the JCPOA.	The paradigm of liberalism expects that absolute gains are sought by the EU and Iran by means of their gas relationship after the accomplishment of the JCPOA.

So the paradigms of liberalism and realism expect different outcomes from the research question: the paradigm of realism expects that relative gains are sought by the EU and Iran by means of their gas relationship after the accomplishment of the JCPOA and the paradigm of liberalism expects that absolute gains are sought by the EU and Iran by means of their gas relationship after the accomplishment of the JCPOA.

1.5: Research Methodology

1.5.1: Units of analysis

Objects that are studied in social research are also called units of analysis.[135] The objects that are studied in this research are the EU and Iran. With regard to the EU, the EU as a whole, the EU member states as a whole is meant. The foreign policy of each EU member state is not analyzed in this research. This means that the units of analysis are the following:

- Iran
- The EU

[129] Powell, 1991, p.1303.
[130] Powell, 1991, p.1303.
[127] Grieco, Powell and Snidal, 1993, p.729.
[128] Snidal, 1991, p.387.
[131] Powell, 1991, p.1303.
[132] Mowle, 2003, p. 567.
[133] Powell, 1991, p.1304.
[134] Powell, 1991, p.1304.
[135] Babbie, 2007, p.94.

1.5.1.1: applying the paradigms of realism and liberalism *to the EU as a whole* (to the EU as an unit of analysis)

Both realism and liberalism view states as the prima actors in the international system.[136] Both the paradigms of realism and realism focus on how states deal with each other in the international system.[137]
The EU Energy Union was proposed by the European Commission on February 25, 2015. [138] The EU member states' heads of government supported the concerned proposal on the EU Energy Union at the European Council meeting on March 19, 2015.[139] With the support for the Energy Union by the EU member states' heads of governments, the EU member states also approved the Commission's proposal to increase the overall EU energy security through the diversification of suppliers and routes (Southern Gas Corridor Strategy, importing through LNG routes, etc.).[140]
Because of the decreasing production of natural gas in the EU, the EU is heavily dependent on the import of Russian gas.[141] Through the support for the EU Energy Union, the member states' heads of government have also approved the Commission's proposed Energy Security Strategy of 2014, in which the Commission proposed to improve the EU's relative position towards Russia through diversifying away from Russian gas.[142] Given that the EU member states' heads of government have approved the Commission's proposed Energy Security Strategy of 2014 in which the Commission proposed to improve the EU's relative position towards Russia through diversifying away from Russian gas, the realist paradigm will be applied to the EU as a whole (to the EU as an unit of analysis), even if the paradigm of realism usually assumes that states are the main actors in the international system.[143]

Given that the EU equalizes having energy security with having economic welfare and prosperity,[144] the paradigm of liberalism will also be applied to the EU as a whole (to the EU as a unit of analysis).

1.5.2: Conceptualization

In this research, the EU-Iran gas relationship has four elements:

- The EU's foreign policy on importing piped Iranian gas.
- The EU's foreign policy on importing Iranian LNG.
- Iran's foreign policy on exporting piped gas to the EU.
- Iran's foreign policy on exporting LNG to the EU.

[136] Cook, 2011, p.20.
[137] Mowle, 2003, p.561.
[138] Mišík, 2016, p.68.
[139] Mišík, 2016, p.68.
[140] European Commission, 2015a, p.4.
[141] Mišík, 2016, p.68.
[142] European Commission, 2015a, p.2, p.4.
[143] Garcia, 2013, p.523.
[144] European Commission, 2014, p.2.

Given that the concepts of absolute gains and relative gains have been conceptualized in table 1, on the pages 17 and 18, their conceptualizations have not been repeated again in this paragraph.
According to the paradigm of realism, energy resources are used in foreign relations because states want to increase their influence and power in foreign countries.[145] According to the paradigm of realism, balancing is about that states want to balance in all sorts of ways against other states in order to maximize their independence (including energy independence/energy security).[146] **The purpose of focusing on relative gains is on independence in this research, not on outward power politics.** Given that the outcomes of this research have shown that the EU is seeking for the increase of its energy independence through the import of Iranian gas and given that Iran wants to maintain its independence through the Resistance economy doctrine, the focus on relative gains is on independence, not on trying to influence other states with power resources.
The EU wants to increase its energy security through importing more Iranian gas.[147] The International Energy Agency defines energy security as "the uninterrupted availability of energy sources at an affordable price".[148]
A dimension is "a specifiable aspect of a concept".[149] Both the EU's foreign policy on importing Iranian gas and Iran's foreign policy on exporting natural gas to the EU have two dimensions:

- The pipeline dimension
- The LNG dimension

The relevant dimensions of both the EU's foreign policy on importing Iranian natural gas and Iran's foreign policy on exporting natural gas to the EU will be covered up in this research in order to generate content validity.

1.5.2.1: The pipeline dimension and the LNG dimension

Liquefied Natural Gas (LNG) is the main alternative to piped gas.[150] Natural gas can be condensed to a liquid and then it becomes Liquefied Natural Gas.[151] LNG is transported on water via vessels[152] and it is converted into a gas again at LNG hubs,[153] and piped gas is transported via pipelines.[154] LNG can be characterized by the possibility of short duration of its contracts and its flexibility over distances,[155] while the selling, transportation and buying of piped gas can be characterized by the usual long-term contracts and long-term price

[145] Česnakas, 2010, p.30, 42.
[146] Layne, 1989, p.19, p.29, p.40; Česnakas, 2010, p.42.
[147] Tichý and Odintsov, 2016.
[148] International Energy Agency, 2017.
[149] Babbie, 2007, p.126.
[150] European Parliament, 2015.
[151] Grobarčíková, Sosedová and Kalina, 2016, p.33.
[152] Grobarčíková et al., 2016, p.37.
[153] Houshisadat, 2015, p.459.
[154] Houshisadat, 2015, p.459.
[155] Houshisadat, 2015, p.459.

agreements.[156] LNG ports offer more flexibility than pipelines because LNG ports can receive from different gas suppliers, while pipelines generally import only from fixed gas exporters.[157] Opposed to gas transport by pipelines, LNG suppliers can transport their shipments wherever the price is lucrative.[158] Furthermore, in the case of LNG, buyers and sellers are in general *less dependent on transit players than in the case of the buying and selling of piped gas*.[159] In the year 2015, the European Commission mentioned that "LNG prices have over recent years been higher compared to pipeline gas due in particular to high liquefaction, regasification and transportation costs and high demand in Asia".[160]

International gas pipelines usually deal with the crossing of transit states and international gas pipelines can be influenced by the transit states' political factors[161] (possible diplomatic and political pressure)[162]. Moreover, in the case of international gas pipelines, transit states usually demand transit fees.[163] Furthermore, international gas pipelines usually necessitate more lengthy and more difficult negotiations then in the case of LNG, because of the involvement of transit states.[164] From a realist perspective, pipelines are used by supplier states of energy in order to bind the client states to themselves.[165] So, according to realism, pipelines can be used by supplier states for the purpose to have leverage over the client states by binding the client states to themselves.[166]According to realism, if supplier states bind client states to themselves by means of a pipeline, then the supplier states can expand their influence in the client states.[167]

Different dynamics take place in the cases of LNG and piped gas. The transportation of piped gas usually has *a high dependence on transit players*, opposed to the transportation of LNG.[168] Given the fact that the import and export of piped gas and LNG are fundamentally two different situations, they are regarded as two different dimensions in this research. The EU wants to import both piped gas and LNG in order to increase its energy security through gas supply routes diversification.[169] Moreover, the EU wants to increase its energy security through importing both piped Iranian gas[170] and Iranian LNG,[171] because political conditions (the JCPOA) allow this.[172]

[156] Jansen, 2014, p.8.
[157] Houshisadat, 2015, p.462.
[158] Shokri Kalehsar, 2016a, p.542.
[159] Houshisadat, 2015, p.459.
[160] European Commission, 2015a, p.5.
[161] Cornot-Gandolphe,Appert, Dickel, Chabrelie and Rojey,2003, p.6.
[162] Jansen, 2014, p.11.
[163] Jansen, 2014, p.12.
[164] Cornot-Gandolphe et al., 2003, p.6.
[165] Česnakas, 2010, p.42; Kropatcheva, 2014, p.3.
[166] Česnakas, 2010, p.42; Kropatcheva, 2014, p.3.
[167] Česnakas, 2010, p.42.
[168] Houshisadat, 2015, p.459.
[169] European Commission, 2016, p.2.
[170] European Commission, 2008, p.4; European Commission, 2014, p.16.
[171] European Commission, 2016, p.2; European Commission, 2008, p.4.
[172] European Commission, 2014, p.16; European Commission, 2016, p.11.

1.5.3: Operationalization

The independent variables are the EU's foreign policies on importing piped Iranian gas and Iranian LNG, and Iran's foreign policies on exporting piped gas and LNG to the EU. The dependent variables are the absolute gains and relative gains that can be sought by the EU and Iran by means of their gas relationship. What now follows is the operationalization of the absolute gains and relative gains.

1.5.3.1: The operationalization of the absolute gains and relative gains

In the case that the EU's foreign policy on importing **piped Iranian gas** is driven by the motivation to increase the EU's absolute level of economic welfare, whereas the EU is not motivated to get a relative better position towards another state (or states) through the import of piped Iranian gas, then the EU is seeking for absolute gains.
In the case that the EU's foreign policy on importing **Iranian LNG** is driven by the motivation to increase its absolute level of economic welfare, whereas the EU is not motivated to get a relative better position towards another state (or states) through the import of Iranian LNG, then the EU is seeking for absolute gains.
In the case that the EU's foreign policy on importing **piped Iranian gas** is driven by the motivation to get a relative better position towards another state (or states), then the EU is seeking for relative gains and not for absolute gains.
In the case that the EU's foreign policy on importing **Iranian LNG** is driven by the motivation to get a relative better position towards another state (or states), then the EU is seeking for relative gains and not for absolute gains.
In the case that Iran's foreign policy on exporting **piped gas** to the EU is driven by the motivation to improve Iran's relative position towards other states, then Iran is seeking for relative gains, and not for absolute gains.
In the case that Iran's foreign policy on exporting **LNG** to the EU is driven by the motivation to improve Iran's relative position towards other states, then Iran is seeking for relative gains, and not for absolute gains.
In the case that Iran's foreign policy on exporting **piped gas** to the EU is driven by the motivation to increase Iran's absolute level of economic welfare, whereas Iran is not motivated to get a relative better position towards another state (or states), then Iran is seeking for absolute gains and not for relative gains.
In the case that Iran's foreign policy on exporting **LNG** to the EU is driven by the motivation to increase its absolute level of economic welfare, whereas Iran is not motivated to get a relative better position towards another state (or states), then Iran is seeking for absolute gains and not for relative gains.

The cases in which the EU and Iran will seek for absolute gains and/or relative gains have been operationalized across two different dimensions: the pipeline dimension and the LNG dimension. As explained in paragraph 1.5.2.1, Liquefied Natural Gas (LNG) is the main alternative to piped gas.[173] LNG is transported on water via vessels[174] and it is converted into

[173] European Parliament, 2015.

a gas again at LNG hubs,[175] and piped gas is transported via pipelines.[176] Different dynamics take place in the cases of LNG and piped gas. The transportation of piped gas usually has *a high dependence on transit players*, opposed to the transportation of LNG.[177] Across the two different dimensions (the pipeline dimension and the LNG) will both the EU's foreign policies and Iran's foreign policies be analyzed, because the two different dimensions represent two fundamentally different situations.

1.5.3.2: The inclusion of Iranian domestic actors in "Iran" as an unit of analysis

The following table, table 2, provides a clear oversight over the Iranian domestic actors that have been included in "Iran" as a unit of analysis:

Table 2: Iranian domestic actors that have been included in "the state Iran" as an unit of analysis

Iranian domestic actors that have been included in "the state Iran" as an unit of analysis	**Their role in ascertaining whether Iran is seeking for absolute gains and/or relative gains by means of the EU-Iran gas relationship**
The Iranian Petroleum Minister	The statements of the Iranian Petroleum Minister that have been published in scientific articles and press releases can be used for ascertaining Iranian foreign policy on exporting piped gas and LNG to the EU, and thus, its statements can be used for ascertaining whether Iran is seeking for absolute gains and/or relative gains.
Energy officials that work for the National Iranian Oil Company (NIOC)	The statements of NIOC officials that have been published scientific articles and press releases can be used for ascertaining Iranian foreign policy on exporting piped gas and LNG to the EU, and thus, the statements of the concerned energy officials can be used for ascertaining whether Iran is seeking for absolute gains and/or relative gains.
Energy officials that work for the National Iranian Gas Export Company (NIGEC)	The statements of NIGEC officials that have been published in scientific articles and press releases can be used for ascertaining Iranian foreign policy on exporting piped gas and LNG to the EU, and thus, the statements of the concerned energy officials can be used for ascertaining whether Iran is seeking for absolute gains and/or relative gains.
Energy officials that work for the National Iranian Gas Company (NIGC)	The statements of NIGC officials that have been published in scientific articles and press releases can be used for ascertaining Iranian

[174] Grobarčíková et al., 2016, p.37.
[175] Houshisadat, 2015, p.459.
[176] Houshisadat, 2015, p.459.
[177] Houshisadat, 2015, p.459.

	foreign policy on exporting piped gas and LNG to the EU, and thus, the statements of the concerned energy officials can be used for ascertaining whether Iran is seeking for absolute gains and/or relative gains.

In this research, several important domestic actors of the Iranian foreign policy will also be included in Iran as a unit of analysis: The Iranian Petroleum Ministry, the National Iranian Gas Company (NIGC), the National Iranian Oil Company (NIOC) and the National Iranian Gas Export Company (NIGEC). The Iranian Petroleum Ministry controls and supervises the NIOC, NIGC and the NIGEC.[178] Because of the latter, statements of the current Iranian Petroleum Minister (Mr. Zanganeh) will also be used in this research. His statements on Iranian foreign policy on exporting piped gas to the EU and his statements on Iranian foreign policy on exporting LNG to the EU will be taken into account in order to ascertain whether Iran is seeking for absolute gains and/or relative gains by means of the EU Iran gas relationship.

The NIOC is an Iranian state-owned company.[179] The Iranian state has given the NIOC the responsibility for all upstream oil and natural gas projects in Iran.[180] That part of the energy sector that focuses on bringing natural resources to the surface is the upstream sector.[181]

The NIOC has also like the NIGC a managing role in Iran's gas sector assets.[182] In addition, in the year 2002, the NIOC incorporated the NIGEC and under the responsibility of the NIOC, the NIGEC focuses on the trade and export of Iran's natural gas.[183]

Research will be conducted on the statements of different Iranian energy officials (including the Iranian Petroleum Minister) that work for the NIOC or the NIGC or the NIGEC in order to get insights into the Iranian foreign policy on exporting piped gas and LNG to the EU. Their statements on Iran's foreign policies on exporting piped gas and LNG to the EU will be used in order to determine Iran's preferences in connection with exporting piped gas and LNG to the EU. For example, if Iran's Petroleum Minister or an energy official of the NIGEC declares towards the press that Iran does not want to sell piped Iranian gas to the EU in the present time, than this will be taken into account. So besides the "state Iran", the concerned domestic actors of the "state Iran" will also be included in Iran as a unit of analysis.

Scientific articles and press releases that deal with "the state Iran" are also included in the analysis of Iranian foreign policy like aforementioned. So Iran as a unit of analysis is composed of the "the state Iran" (the state level) and the concerned domestic actors (the domestic level). It needs to be emphasized that scientific articles and press releases that do not deal with specific Iranian domestic actors, but just with "the state Iran" are also used for ascertaining Iranian foreign policy on exporting piped gas and Iranian LNG to the EU.

[178] Mohamedi, 2010, p.6; National Iranian Gas Export Co, 2017
[179] IRANWATCH, 2015, p.2.
[180] IRANWATCH, 2015, p.2.
[181] Tichý and Odintsov, 2016, p.112.
[182] Habibi, 2014, p.2.
[183] National Iranian Gas Export Co, 2017.

1.6: Scientific relevance

Iran's potential to supply gas to the EU after the JCPOA agreement of July 2015 has already gotten attention in the academic field.
Tanchum[184] has written about both China's and India's potential demand for Iranian gas, that needs to be taken into account by the EU. According to Tanchum[185], the EU, China and India will compete for piped Iranian gas. So this author has already written about Iran's potential to supply gas to the EU after the JCPOA.
Shirvani and Vuković[186] have also written a scientific article about the JCPOA and the EU's gas interests. Shirvani and Vuković[187] also mention what Iran could potentially mean for the EU in the field of the EU's energy security.
Tagliapietra and Zachmann[188] have also written about Iran's large gas supplies and about the importance of the Iranian-Turkish natural gas partnership for the EU. So Tagliapietra and Zachmann[189] have written about what important is for the EU with regard to importing gas from Iran in the post-sanctions era.
Tichý and Odintsov[190] have written about the constraints for the EU with regard to importing Iranian gas after the JCPOA of July 2015. They focus on Iran's underdeveloped energy sector in the post-sanctions era and the disadvantage of this for the EU's goal of being less dependent on Russian gas.[191]
Koranyi[192] has written an article about the Southern Gas Corridor. Koranyi[193] mentions that if the diplomatic relations normalizes with Iran, then Iranian gas could be connected to the Southern Gas Corridor. In 2015, the diplomatic relations between Iran and the Western world have normalized, and it is now actually possible to connect Iranian gas to the Southern Gas Corridor.
Houshisadat[194] has written an article about the EU's increasing demand on LNG. The author also mentions that because of the increasing demand on LNG by the EU, gas from the Persian Gulf will be very import.[195] What the author actually tells is that there is harmony between the EU's goal of importing more LNG and Iran's goal of exporting more LNG in the future.
Pant's[196] article deals with Iran's prospects on the energy market after the JCPOA. The author also addresses Iran's possibility to export gas to the EU.[197] According to the author[198], Iran has not rejected the possibility to export natural gas to Europe via pipelines.

[184] Tanchum, 2015.
[185] Tanchum, 2015.
[186] Shirvani and Vuković, 2015.
[187] Shirvani and Vuković, 2015.
[188] Tagliapietra and Zachmann, 2015, p.7.
[189] Tagliapietra and Zachmann, 2015, p.7.
[190] Tichý and Odintsov, 2016.
[191] Tichý and Odintsov, 2016.
[192] Koranyi, 2014.
[193] Koranyi, 2014.
[194] Houshisadat, 2015.
[195] Houshisadat, 2015, p.460.
[196] Pant, 2016.
[197] Pant, 2016, p. 4-5.
[198] Pant, 2016, p.5.

Shokri Kalehsar[199] has written an article in which he also deals with Iran's potential to supply gas to Europe in the post-sanctions era. The author[200] says that in the post-sanctions era Iran could be an important supplier of gas to the European market. In this article, it is also mentioned that Iran could use Azerbaijan's infrastructure to export gas to Europe in the post-sanctions era.[201]
So, many research has been conducted on the EU-Iran gas relationship after the nuclear deal. However, not one article/resource has been found in which both the lenses of liberalism (absolute gains) and realism (relative gains) has been applied the EU-Iran gas relationship after the nuclear deal of July 2015.
In this master thesis, existing international relations paradigms, liberalism and realism, are going to be applied to the EU-Iran gas relationship after the nuclear deal of July 2015. The added value of the latter is that in addition to the existing literature on the EU-Iran gas relationship after the nuclear, research will be conducted on whether the EU and Iran are more driven by power politics or by the liberal/economic approach.

1.7: Overview of the thesis

As mentioned in paragraph 1.2, the research question of this master thesis is:

To what extent are absolute gains and relative gains sought by the EU and Iran by means of their gas relationship after the accomplishment of the JCPOA in July 2015?

In this paragraph, it will be explained how the research question will be answered.
Chapter two deals with the pipeline dimension. Chapter 2 is about the EU's foreign policy on importing piped Iranian gas and it is about Iran's foreign policy on exporting piped gas to the EU. Through chapter 2, there will be the ability to ascertain whether the EU is seeking for absolute gains and/or relative gains through its foreign policy on importing piped Iranian gas and the ability will be there to ascertain whether Iran is seeking for absolute gains and/or relative gains through its foreign policy on exporting piped gas to the EU.
Chapter 3 deals with the LNG dimension. Chapter 3 is about the EU's foreign policy on importing Iranian LNG and it is about Iran's foreign policy on exporting LNG to the EU. Through chapter 3, there will be the ability to ascertain whether the EU is seeking for absolute gains and/or relative gains through its foreign policy on importing Iranian LNG and the ability will be there to ascertain whether Iran is seeking for absolute gains and/relative gains through its foreign policy on exporting LNG to the EU.
The research question will be answered in the conclusion on the basis of the empirical results of the chapters 2 and 3. The implication(s) of the answer of the research question will also be discussed in the conclusion. Furthermore, the limitations of this research will also be discussed in the conclusion. The following table visualizes the set-up of this research after chapter 1.

[199] Shokri Kalehsar, 2016.
[200] Shokri Kalehsar, 2016, p.136.
[201] Shokri Kalehsar, 2016, p.142.

Table 3: An overview of the master thesis after the introductory chapter 1

The chapters	The dimension(s)	Dealing with absolute gains and relative gains
Chapter 2: The EU's foreign policy on importing piped Iranian gas and Iranian foreign policy on exporting piped gas to the EU.	This chapter is related to the pipeline dimension.	Through chapter 2, there will be the ability to ascertain whether the EU is seeking for absolute gains and/or relative gains through its foreign policy on importing piped Iranian gas and the ability will be there to ascertain whether Iran is seeking for absolute gains and/or relative gains through its foreign policy on exporting piped gas to the EU.
Chapter 3: The EU's foreign policy on importing Iranian LNG and Iranian foreign policy on exporting LNG to the EU.	This chapter is related to the LNG dimension.	Through chapter 3, there will be the ability to ascertain whether the EU is seeking for absolute gains and/or relative gains through its foreign policy on importing Iranian LNG and the ability will be there to ascertain whether Iran is seeking for absolute gains and/relative gains through its foreign policy on exporting LNG to the EU.
Chapter 4: The conclusion.	This chapter is related to both the pipeline dimension and the LNG dimension.	The research question will be answered in the conclusion on the basis of the empirical results of the chapters 2 and 3. The important implication of the answer of the research question will also be discussed in the conclusion. Furthermore, the limitations of this research will also be discussed in the conclusion.

Chapter 2: The EU's foreign policy on importing piped Iranian gas and Iran's foreign policy on exporting piped gas to the EU

This chapter deals with the *pipeline dimension*. Both the EU's foreign policy on importing piped Iranian gas and Iran's foreign policy on exporting piped gas to the EU will be addressed in this chapter. Through chapter 2, there will be the ability to ascertain whether the EU is seeking for absolute gains and/or relative gains through its foreign policy on importing piped Iranian gas and the ability will be there to ascertain whether Iran is seeking for absolute gains and/or relative gains through its foreign policy on exporting piped gas to the EU.

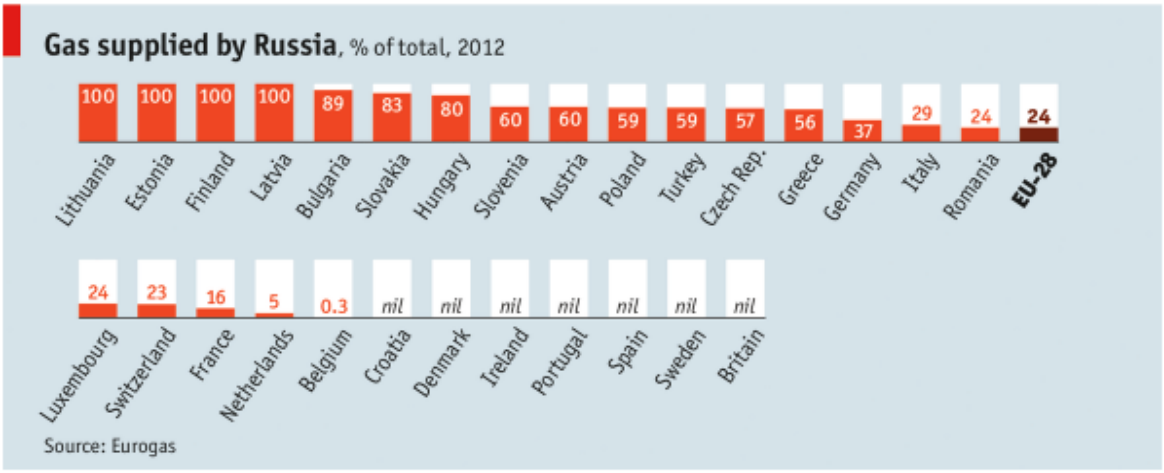
2.1: The EU's foreign policy on being less dependent on piped Russian gas and the EU's Southern Gas Corridor Strategy

The uprising of the EU's Southern Gas Corridor Strategy is related to the gas supply disruptions that hit various EU member states during Ukraine-Russia natural gas conflicts of the years 2006 and 2009.

2.1.1: the background of the EU's Southern Gas Corridor Strategy

In January 2006 and January 2009 conflicts between Moscow and Kyiv about transit arrangements brought about reductions in gas deliveries to Europe.[202] In both 2006 and 2009, the Russian led state company Gazprom had a price and payments conflict with Ukraine.[203] Gas cuts in the beginning of January 2009 caused large shortages in various EU member states.[204] In 2009, Gazprom suspected Ukraine of stealing the natural gas, and eventually, Russia cut off supplies to Ukraine completely.[205] States in Eastern and Central Europe were from an economic perspective negatively affected by the gas crisis between Moscow and Kyiv, because Ukraine was an important gas transit country for these states.[206]
After the 2014 Ukraine crisis, it became again politically less acceptable for the EU to import Russian gas.[207] About one third of European consumption of gas is supplied by Russian gas, and the Baltic region, Central and South East Europe are heavily dependent on Russian gas.[208] Poland imports more than 50% of its gas from Russia.[209] For example, in the year of 2013, Estonia, Latvia, Lithuania and Finland fulfilled their gas import requirements only through importing Russian gas.[210] One of the reasons for the Ukraine crisis of 2014 being a sensitive political and economic conflict is that in the year 2015, 50 percent of Russian gas destined to the EU is transported via Ukraine.[211] The following graphic (it is visible on the next page) makes clear how dependent several EU member states are on Russian gas:

[202] Winrow, 2013, p.149-150.
[203] Luciani, 2015, p.25.
[204] Casier, 2011, p.549.
[205] Luciani, 2015, p.25.
[206] Winrow, 2013, p.150.
[207] Yafimava, 2015, p.2.
[208] Yafimava, 2015, p.2.
[209] Chakhava and Ikechukwu, 2015, p.56.
[210] Yafimava, 2015, p.12.
[211] Siddi, 2016, p.134.



The Economist (2014)

Because of the fact that the EU-Russia political relationship has deteriorated, after the start of the Ukraine crisis in 2014 and the subsequent Russian reactions in eastern Ukraine and Crimea, importing Russian gas has become less political acceptable and the EU feels the strong urgent to reduce the EU's overall high reliance on importing Russian gas, [212] so that energy supply disruptions like those in 2006 and 2009 will not happen soon anymore. In the European Energy Security Strategy that has been proposed by the European Commission in 2014, it is also clear that the EU wants to decrease its dependence (and increase its energy independence) on Russian gas for its overall economic welfare.[213] In the European Commission's communication on the European Energy Security Strategy, the European Commission states that "the European Union's **prosperity and security** hinges on a stable and abundant supply of energy."[214]

2.1.2: The EU's Southern Gas Corridor Strategy

The Southern Gas Corridor Strategy is a strategy that encompasses the EU's goal to diversify the sources and routes of gas supplies to the EU.[215] The EU's Southern Gas Corridor strategy is a strategy that is used by the EU to describe planned gas infrastructure projects that aim at bringing *pipeline gas* from the Caspian region to Europe so that the EU can improve the security and the diversification of its gas supplies.[216] The project was mentioned for the first time in the Second Strategic Energy Review in 2008.[217] The European Commission put forward the Southern Gas Corridor initiative in 2008 after that the EU's energy security concerns had appeared because of the first Russian-Ukrainian-European natural gas crisis in 2006.[218] The European Commission mentioned that "a southern gas corridor must be developed for the supply of gas from Caspian and Middle Eastern sources, which could

[212] Yafimava, 2015, p. 17.
[213] European Commission, 2014, p.2.
[214] European Commission, 2014, p.2.
[215] Jarosiewicz, 2015, p.9.
[216] Schröder, 2017, p.3.
[217] European Commission, 2008.
[218] Tagliapietra and Zachmann, 2015, p.2.

potentially supply a significant part of the EU's need".[219] The supply from Caspian and Middle Eastern sources could the EU make less dependent on importing Russian gas and increase the EU's energy independence from Russia. The initial capacity of the Southern Gas Corridor will be 16 bcm. [220]
The following picture is a picture of the Southern Gas corridor. The Southern Gas Corridor will be composed of three different parts when it begins with transporting gas in 2019 probably: the SCP pipeline, the TANAP pipeline and the TAP pipeline.[221] As mentioned before, the Southern Gas Corridor is a pipeline project in which the EU is also interested in connecting Iranian gas to it:

Eurasianews.de (2016).

2.2: The EU's foreign policy on importing piped gas from Iran via the Southern Gas Corridor

According to a report of the British Petroleum (BP), Iran had the world's largest natural gas reserves in 2015.[222] In the year 2015, Iran's proven natural gas reserves were 34 TCM.[223]
In the EU's commission policy document of 2008, in which the Southern Gas Corridor Project was introduced, it was also mentioned that "Iran should represent a further significant supply source for the EU, when political conditions permit"[224]. In the EU's Commission policy document on the 'European Energy Security Strategy' the European Commission mentioned that in the longer term, a country like Iran, "if conditions are met to lift the

[219] European Commission, 2008, p.4.
[220] Tanchum, 2015, p.10.
[221] Cohen, 2014, p.4; Tanchum, 2015, p.10.
[222] British Petroleum, 2015, p.20.
[223] British Petroleum, 2015, p.20.
[224] European Commission, 2008, p.4.

sanctions regime", "could also significantly contribute to the enlargement of the Southern Gas Corridor"[225].

2.2.1: The EU's energy partnership with Turkey and the importance of TANAP (the Turkish part of the Southern Gas Corridor) for the EU in connection with importing piped Iranian gas

In the February 2015 Energy Union Communication, the European Commission suggested the formation of a new strategic energy partnership with Turkey.[226]
On 17 March 2015, there was a press release published by the European Commission and on that day, the EU and Turkey launched the High Level Energy Dialogue.[227] The High Level Energy Dialogue between Turkey and the EU will take place at ministerial level every year.[228] So Turkey and the EU can be regarded as strategic energy partners.
Both the EU and Turkey will continue to collaborate to realize the Trans-Anatolian Natural Gas Pipeline project.[229] In addition, TANAP is very important for the EU's security of supply and for the implementation of the Southern Gas Corridor.[230] The EU wants to reduce its energy dependence on Russia and increase its energy independence from Russia by getting access to natural gas resources in the Caspian region (including Iran) via the TANAP.[231] Furthermore, Turkey's development as an energy transit state and as a natural gas hub is in the interest of the EU.[232] A physical energy hub involves a state in which there is considerable energy infrastructure (pipelines and facilities such as storage units, refineries, petrochemical factories, terminals, gas liquefaction plants, etc.[233]. Turkey's location makes Turkey an important natural gas hub for the EU, because Turkey is located between the Middle-East, the Caspian Region and Europe.
In the EU's foreign policy, the strategic energy partnership with Turkey is very important because of TANAP. The Trans Anatolian Natural Gas Pipeline will start on the Turkish-Georgian border and it will end on the Turkish-Greek border. Describing it differently, the Trans Anatolian Natural Gas Pipeline is that part of the Southern Gas Corridor Project that is located in Turkey.
In October 2011, the Turkish government made an agreement with Azerbaijan on the creation of the Trans Anatolian Natural Gas Pipeline.[234] In this agreement, it was decided that Turkey will import 6 bcm of gas from Azerbaijan through the TANAP.[235]
The TANAP is expected to be fully operational in 2019.[236] It is expected that by the year 2019, Azerbaijan will supply on a yearly basis 6 bcm to Turkey and 10 bcm to Europe via the Southern Gas Corridor.[237]

[225] European Commission, 2014, p.16.
[226] Tagliapietra & Zachmann, 2015, p.1.
[227] European Commission, 2015b.
[228] European Commission, 2015b.
[229] European Commission, 2015b.
[230] European Commission, 2015.
[231] Ünal, 2016, p.32.
[232] European Commission, 2015b.
[233] Winrow, 2013, p.154.
[234] Bilgin, 2015, p.71.
[235] Bilgin 2015, p.71.
[236] Tanchum, 2015, p.10.
[237] Tanchum, 2015, p. 10-11.

I already described beforehand that In the EU's commission policy document of 2008, [238] in which the Southern Gas Corridor Project was introduced, it was also mentioned that "Iran should represent a further significant supply source for the EU, when political conditions permit". In the EU's Commission policy document on the 'European Energy Security Strategy' the European Commission mentioned that in the longer term, a country like Iran, "if conditions are met to lift the sanctions regime", "could also significantly contribute to the enlargement of the Southern Gas Corridor".[239]
According to the EU Commissioner for Climate Action and Energy, Miguel Arias Canete, the Southern Gas Corridor is a high priority for the EU, and one of the countries that are aimed with the Southern Gas Corridor is Iran.[240]
After the realization of the JCPOA in July 2015, the EU is willing to import piped Iranian gas via Turkey. The EU is a signatory to the JCPOA and it wants to diversify its gas supplies through importing Iranian gas. As mentioned before, the EU has established a strategic energy partnership with Turkey, and the EU is willing to import Iranian gas via TANAP (the TANAP pipeline is located in Turkey and it will be "the Turkish part" of the Southern Gas Corridor).

2.2.2: The EU's attitude towards Iran's price demands for its natural gas

The EU's Energy Commissioner Miguel Arias Cañete visited Tehran in April 2016, in order to speak with several Iranian energy ministers and the EU's Energy Commissioner made clear that Iran's price demands remains a huge problem.[241] In addition, the EU's Energy Commissioner made clear that Iran has to decrease its price expectations in order to be an alternative to not expensive Russian gas supplies.[242] Iranian gas prices are an important problem that has to be overcome by the EU before Iranian gas would be connected to the Southern Gas Corridor for transportation to the EU.[243]

2.3: Iran's foreign policy on exporting piped gas to the EU

It has already been mentioned beforehand that in the European Commission's policy document on the 'European Energy Security Strategy' that in the longer term, a country like Iran, "if conditions are met to lift the sanctions regime", "could also significantly contribute to the enlargement of the Southern Gas Corridor"[244].
With regard to importing piped Iranian gas by the EU, Turkey as a potential transit state is very important for the EU[245]. Because of geography, the relations between Iran and Turkey are very important for the EU with regard to importing piped Iranian gas.[246]

[238] European Commission, 2008, p.4.
[239] European Commission, 2014, p.16.
[240] Shokri Kalehsar, 2016, p. 137.
[241] Norman, 2016.
[242] Norman, 2016.
[243] Shokri Kalehsar, 2016, p. 141.
[244] European Commission, 2014, p.16.
[245] Tagliapietra and Zachmann, 2015, p.7.
[246] Tagliapietra and Zachmann, 2015, p.7.

2.3.1: Iran's current unwillingness to export piped gas to the EU because of its regional rivalry with Turkey

Iran's foreign policy on exporting pipeline gas through Turkey is negatively impacted by their *regional rivalry*,[247] and this was evident during the EU Energy Commissioner's visit to Tehran in April 2016. Iran's energy ministers made clear to the EU's Energy Commissioner Miguel Arias Cañete during the energy summit in Tehran in April 2016, that Iran has no interest in extending pipelines to Europe in the present time and on the short term, because it would necessitate that Iran would make some powerful deals *with a regional rival like Turkey, which is not feasible in the present time, according to Iran's energy ministers.*[248] Furthermore, it is worthy to mention that if Iran would export piped gas to the EU via Turkey, then Turkey would get more bargaining power that could be used against Iran.[249] In the next paragraph it will be explained why Iran and Turkey are regional rivals.

No cause has had such a worsening effect on the Iran-Turkey relations as the Syrian civil war.[250] Turkey is providing military means to rebellious groups that are fighting against the regime of Assad and Iran is supporting the regime of Assad with military means. Turkey is supporting some rebellious groups that are related to the Sunni branch of Islam, while Syria's current president belongs to the alawite branch of Islam. Syria with its current Assad regime is very important territory for Iran because Syria is part of the 'Shia Crescent', which as a term is used to characterize Iran's area of influence in the Middle East.[251] The Turkish support for the rebellious groups that combat the Assad regime is a threat for Iran's access to the coasts of the Mediterranean Sea.[252] If Syria's Assad regime would be replaced by a pro Turkey Sunni government, then Iran's access to Lebanon and Iran's ability to counter Israel would be hindered.[253] Iran wants to keep the ability to reach the coasts of the Mediterranean Sea in order to provide Hezbollah with weapons.[254]

In November 2015, Turkish forces shot down a Russian warplane and subsequently the Russian pilot died.[255] In December 2015, Iran's gas exports to Turkey were reduced by 50 percent during the Turkey-Russia tensions.[256] As a consequence, the Turkish government got the opinion, that Iran's gas supply cuts to Turkey were potentially motivated to show Iranian solidarity with Russia,[257] while the chief of the National Iranian Gas Company stated that there was a technical problem with the supply facilities.[258]

[247] Unver, 2016, p.141.
[248] Norman, 2016.
[249] Ünal, 2016, p.8.
[250] Unver, 2016, p.134.
[251] Unver, 2016, p.136.
[252] Barrans, 2016, p.41.
[253] Unver, 2016, p.136.
[254] Barrans, 2016, p.41.
[255] BBC NEWS, 2015.
[256] Unver, 2016, p.137.
[257] Shaffer, 2015.
[258] Unver, 2016, p.137.

2.3.2: Iran's current unwillingness to export piped gas to the EU because of Turkey's transit fee demands

A hindrance for Iran in connection with exporting piped gas to the EU via Turkey is Turkey's transition fee demands .The current Iranian Petroleum minister, Bijan Namdar Zanganeh declared on November 21, 2015, that Turkey's current transit pricing demands are too high, and that exporting LNG to Europe through ships is a better option.[259] In addition, the TANAP is a pipeline that will be fully operational by 2019[260] and it will be located in Turkey, and Iran has the opinion that the transit fees for Iranian gas are too high and that it is not economically profitable to transport Iranian gas via TANAP (The TANAP part will be the Turkish part of the Southern Gas Corridor).[261]

The managing director of the National Iranian Gas Company declared that exporting natural gas through pipelines to Europe *would necessitate paying transit fees* and dealing with other involved technical questions, while exporting piped gas to neighboring countries is much more cost effective than exporting gas to Europe through a pipeline of thousands of kilometers.[262] So the Turkish transit fee demands constitute a commercial issue for Iran with regard to the option of exporting piped gas to the EU via Turkey.

2.4: Iran's current unwillingness to export piped gas to the EU because of Iran's underdeveloped gas sector and because of the current gas prices in Europe

The many years of sanctions have negatively influenced Iran's gas sector and Iran needs huge (foreign) investments and technological upgrading of its gas sector.[263] The EU imposed sanctions on Iran in 2010 and 2012 and it disadvantaged Iran's energy sector very much, because Iran's access to European energy markets, technology and capital from other countries was blocked.[264] Iran's ability to export natural gas also depends on its domestic consumption.[265] The Iranian state prioritizes the domestic consumption of natural gas in Iran and the re-injection of natural gas into the maturing Iranian oil fields over the export of natural gas.[266] Because of Iran's inefficient gas sector, Iran has an excessive domestic consumption of natural gas and that part of the Iranian gas sector that focuses on bringing natural gas to the surface (the upstream sector) is facing underinvestment.[267]
The EU's Energy Commissioner Miguel Arias Cañete visited Tehran in April 2016, in order to speak with several Iranian energy ministers and Iran's energy ministers made clear to the EU's Energy Commissioner Miguel Arias Cañete that Iran has no interest in extending pipelines to Europe on the short-term, *because it would take too much time for Iran* for

[259] Unver, 2016, p.138.
[260] Tanchum, 2015, p.10.
[261] Shokri Kalehsar, 2016, p. 140.
[262] PressTV, 2015.
[263] Pant, 2016, p.2.
[264] Tichý and Odintsov, 2016, p.113.
[265] Pant, 2016, p.5.
[266] Tichý and Odintsov, 2016, p.116.
[267] Tichý and Odintsov, 2016, p.112.

realizing the option of exporting piped gas to Europe.[268] Iran's gas sector is underdeveloped and Iran needs foreign capital and foreign technology to upgrade its gas sector. Iran's gas sector is inefficient, and comparatively much gas that Iran has extracted has been used for Iran's domestic gas consumption. It will take some years, until Iran's energy sector has been significantly upgraded. The European Commission estimated that Iran is likely to be able to export between 25 bcm and 35 bcm per year to the EU by 2030.[269] For a comparison, according to Gazprom statistics, Russia exported 146 bcm of natural gas to Europe in 2014.[270]

After the nuclear deal with Iran in July 2015, the managing director of the National Iranian Gas Exporting Company, Alireza Kameli, stated that exporting natural gas to Europe through pipelines is not economically profitable in the current situation.[271] In addition, the managing director of the National Iranian Gas Company declared that exporting natural gas through pipelines to Europe would necessitate paying transit fees and dealing with other involved technical questions, while exporting piped gas to neighboring countries is much more cost effective than exporting gas to Europe through a pipeline of thousands of kilometers.[272]

The National Iranian Oil Company has also like the National Iranian Gas Company a managing role in Iran's gas sector assets.[273] The CEO of the National Iranian Oil Company, Rokkendin Javad, declared that the gas price in Europe is having as a consequence that infrastructure projects such as pipelines to Europe are economically not profitable enough in the present time.[274] At the May 2015 Berlin Energy Security summit, Iran's petroleum minister, Zanganeh declared, that based on the commerciality of prices, Iran's current attitude is that it prefers to export natural gas through pipelines to Asia instead of Europe.[275]

2.5: Iranian foreign policy on exporting piped gas within the framework of the Iranian "Resistance Economy" doctrine

In the year of 2010, Iran's supreme leader introduced the Resistance Economy doctrine.[276] The Resistance Economy doctrine was a response to the sanctions that were imposed on Iran.[277] Through the Resistance Economy doctrine, Iranian economic policy-making is a part of a national security doctrine.[278] **The Resistance Economy doctrine has the purpose to make the Iranian economy resistant to all foreign economic influential factors in the long run, including western sanctions and worldwide financial crisis.**[279] In other words, by means of the Resistance Economy doctrine, Iran wants to overcome pressures from Western states' sanctions and economic pressure on other states.[280] Moreover, through the

[268] Norman, 2016.
[269] Norman, 2016.
[270] Damianova, 2015, p.74.
[271] PressTV, 2015.
[272] PressTV, 2015.
[273] Habibi, 2014, p.2.
[274] Shokri Kalehsar, 2016, p.138.
[275] Tanchum, 2015, p.8.
[276] Piran and Dorche, 2015, p.647.
[277] Jalilvand, 2017, p.2.
[278] Toumaj, 2014. p.2.
[279] Toumaj, 2014. p.2.
[280] Piran and Dorche, 2016, p.648.

Resistance Economy doctrine, Iran wants to improve its domestic capabilities so that Iran will be less vulnerable to international business and trade.[281] Through the Resistance Economy doctrine Iran wants to attain economic growth and economic prosperity even under international pressure (even under international sanctions).[282] In other words, through the Resistance Economy doctrine, Iran is aiming to be **as independent as possible** from other (western) countries in connection with attaining economic growth and prosperity.[283]
In accordance with the Resistance Economy doctrine, Iran wants to use energy trade for its political purposes on the long term.[284] Within the framework of the Resistance Economy doctrine, **Iran will choose for pipeline routes that are the most economically *and politically* suitable.[285]** Furthermore, in accordance with the Resistance Economy doctrine, Iran wants to diversify its gas export routes and destinations in order to reduce the consequences of possible future sanctions.[286] **Iran wants to have strategic flexibility during a new possible era of sanctions in the future**.[287]Additionally, after the nuclear deal, in the post-sanctions era, Iran wants to diversify demand in natural gas exports (pipelines and LNG included).[288]
An important reason behind Iran's will for LNG capabilities is that Iran wants to sell and transport its natural gas exports to international markets without needing neighboring countries, because of the existence of tensed political relations among Iran and its neighboring countries.[289] One of those neighboring countries is Turkey. As said before, in accordance with the Resistance Economy doctrine, Iran will choose for pipeline routes that are the most *economically and politically* suitable, [290] and Iran's energy ministers made clear to the EU's Energy Commissioner Miguel Arias Cañete during the energy summit in Tehran in April 2016, that Iran has no interest in extending pipelines to Europe in the present time and on the short term, because it would necessitate that Iran would make some powerful deals *with a regional rival like Turkey, which is not achievable in the present time, according to Iran's energy ministers.*[291]
As mentioned before, the EU has established a strategic energy partnership with Turkey,[292] and the EU wants to import Iranian gas via TANAP (the TANAP pipeline will be located in Turkey and it will be "the Turkish part" of the Southern Gas Corridor), but a pipeline from Iran to the EU is both economically and politically not suitable for Iran, because Iran and Turkey are regional rivals[293] and according to Iran, Turkey's current transit pricing demands are too high, and for Iran, it is not economically profitable to transport Iranian gas via Turkey

[281] Jalilvand, 2017, p.2.
[282] Piran and Dorche, 2016, p.647
[283] Piran and Dorche, 2016, p.647
[284] Ünal, 2016, p.7.
[285] Ünal, 2016, p.26.
[286] Ünal, 2016, p.20.
[287] Ünal, 2016, p.8.
[288] Ünal, 2016, p.20.
[289] Ünal, 2016, p.24.
[290] Ünal, 2016, p.26.
[291] Norman, 2016.
[292] European Commission, 2015b.
[293] Norman, 2016.

(the TANAP part of the Southern Gas Corridor) to Europe.[294] Iran has the opinion that exporting LNG to Europe through ships is a better option.[295]
Furthermore, within the framework of the Resistance Economy doctrine, Iran wants to reduce the consequences of possible future sanctions.[296] In accordance with Iran's Resistance Economy Doctrine, Iran wants to increase its LNG export capability because it is advantageous for Iran's diversification of its gas export routes and destinations, and it gives Iran a **strategic flexibility during a new possible era of sanctions in the future**.[297]
So, Iran's preference to export LNG to the EU[298] (which will be further explained in the next chapter) **and Iran's preference to not export piped gas to the EU** is in line with Iran Resistance Economy goal of having *strategic flexibility* during a new possible era of sanctions in the future.[299] As mentioned in chapter 1, exporting LNG provides more flexibility with regard to changing destinations than pipelines do.

2.6: Through its foreign policy on importing piped Iranian gas, the EU is seeking for relative gains and not for absolute gains

As mentioned in chapter 1, according to the concept of absolute gains, **states are indifferent to the gains of other actors.**[300] States make decisions based upon their judgments of their own welfare, **not that of others.**[301] However, the EU does care about how well they perform relative to Russia. Although the EU has some liberal concerns about the Iranian price demands, but the EU is motivated to use Iranian gas in order to reduce its energy dependence on Russia and to increase its energy independence from Russia.[302] Russia has the capability and the power to significantly disrupt gas supplies to the majority of Central- and Eastern European EU member states[303] and the EU wants to counter this relative power of Russia through connecting Iranian gas to the Southern Gas Corridor's pipeline network.[304] So, the EU wants to reduce its energy dependence on Russia and increase its energy independence from Russia through importing Iranian pipeline gas via the Southern Gas Corridor.[305] Through its foreign policy on importing piped Iranian gas, the EU is seeking for relative gains and not for absolute gains.

[294] Shokri Kalehsar, 2016, p. 140.
[295] Unver, 2016, p.138.
[296] Ünal, 2016, p.20.
[297] Ünal, 2016, p.8.
[298] Houshisadat, 2015, p.466.
[299] Ünal, 2016, p.8.
[300] Powell, 1991, p.1303.
[301] Mowle, 2003, p. 567.
[302] European Commision, 2014, p.2, p.16; Houshisadat, 2015, p.470-471.
[303] Yafimava, 2015, p. 2.
[304] European Commision, 2014, p.2, p.16.
[305] Ünal, 2016, p.32.

2.7: Through its foreign policy on exporting piped gas to the EU, Iran is seeking for relative gains and not for absolute gains

The Resistance Economy doctrine was a response to the sanctions that were imposed on Iran.[306] Through the Resistance Economy doctrine, Iranian economic policy-making is a part of a national security doctrine.[307] The Resistance Economy doctrine has the purpose to make the Iranian economy **resistant to all foreign economic influential factors in the long run, including western sanctions and worldwide financial crisis.**[308] Through the Resistance Economy doctrine Iran wants to immunize itself against western sanctions and Iran wants to make itself as independent as possible from western countries.[309] Within the framework of the Resistance Economy doctrine, Iran will choose for pipeline routes that are the most economically **and politically suitable.**[310]

For Iran, exporting piped gas to the EU via Turkey as a transit state is **not politically suitable.** Iran's energy ministers made clear to the EU's Energy Commissioner Miguel Arias Cañete during the energy summit in Tehran in April 2016, that Iran has no interest in extending pipelines to Europe in the present time and on the short term, because it would necessitate that Iran would make some powerful deals *with a regional rival like Turkey, which is not feasible in the present time, according to Iran's energy ministers.*[311] There are some liberal constraints for Iran such as the Turkish transit fee demands, the gas prices in Europe and the poor state of the Iranian energy sector, but what is crucial is that part of the concept of absolute gains which says that according to the concept of absolute gains, states are **indifferent to the gains of other actors.**[312] States make decisions based upon their judgments of their **own welfare, not that of others.**[313] However, through the Resistance Economy doctrine, **Iran cares about how well Iran performs relative to other states.**

Through the Resistance Economy doctrine, Iranian economic policy-making is a part of a national security doctrine.[314] The Resistance Economy doctrine has the purpose to make the Iranian economy **resistant to all foreign economic influential factors in the long run, including western sanctions and worldwide financial crisis.**[315] **Iran's preference to not export piped gas to the EU** is in line with Iran Resistance Economy goal of having *strategic flexibility* during a new possible era of sanctions in the future.[316]

Through its foreign policy on exporting piped gas to the EU, Iran is seeking for relative gains, and not for absolute gains.

[306] Jalilvand, 2017, p.2.
[307] Toumaj, 2014. p.2
[308] Toumaj, 2014. p.2
[309] Edelman, 2016, p.13
[310] Ünal, 2016, p.26.
[311] Norman, 2016.
[312] Powell, 1991, p.1303.
[313] Mowle, 2003, p. 567.
[314] Toumaj, 2014. p.2
[315] Toumaj, 2014. p.2
[316] Ünal, 2016, p.8.

Chapter 3: The EU's foreign policy on importing Iranian LNG and Iran's foreign policy on exporting LNG to the EU

This chapter deals with the *LNG dimension*. Both the EU's foreign policy on importing Iranian LNG and Iran's foreign policy on exporting LNG to the EU will be addressed in this chapter. Through chapter 3, there will be the ability to ascertain whether the EU is seeking for absolute gains and/or relative gains through its foreign policy on importing Iranian LNG and the ability will be there to ascertain whether Iran is seeking for absolute gains and/or relative gains through its foreign policy on exporting LNG to the EU.

3.1: Background information on LNG

Natural gas can be condensed to a liquid and then it becomes Liquefied Natural Gas (LNG).[317] LNG is transported on water via vessels[318] and it is converted into a gas again at LNG hubs.[319] LNG can be characterized by the possibility of short duration of its contracts and its flexibility over distances.[320] Besides, another important advantage of LNG is that LNG producers and consumers less dependent on transit players than in the case of the buying and selling of piped gas.[321] International gas pipelines usually necessitate more lengthy and more difficult negotiations then in the case of LNG, because of the involvement of transit states.[322] In the year 2015, the European Commission mentioned that "LNG prices have over recent years been higher compared to pipeline gas due in particular to high liquefaction, regasification and transportation costs and high demand in Asia".[323]

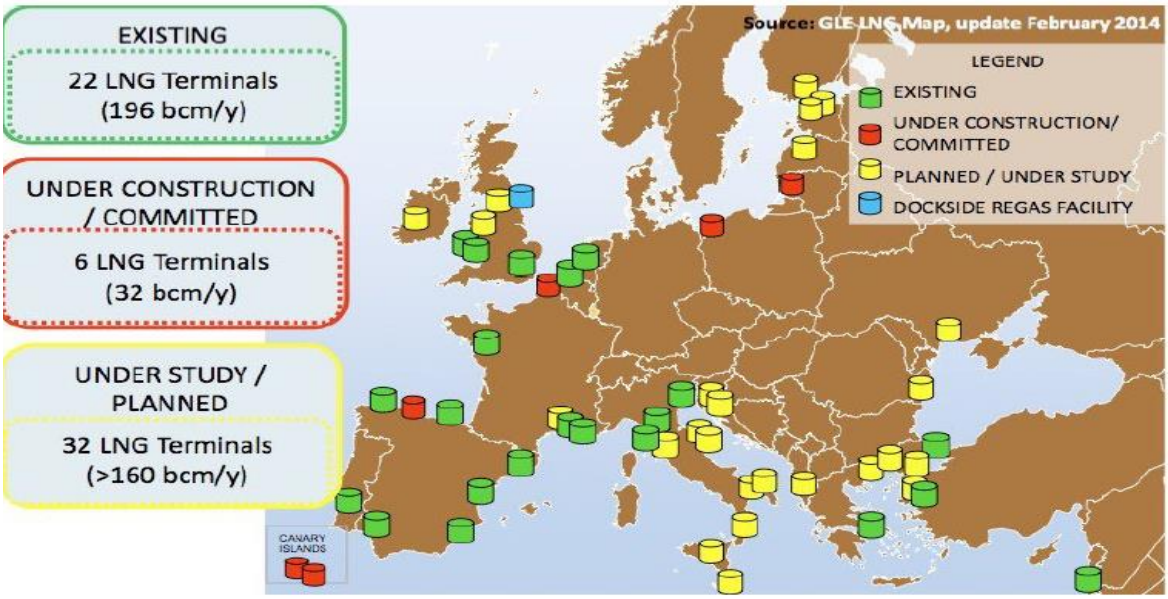
3.2: The EU's foreign policy on importing Iranian LNG

The EU wants to diversify away from Russian gas and the European Commission and the European Parliament view Iranian gas as a possible alternative to Russian gas.[324] Particularly since the Ukrainian Crisis, the European market is searching for alternatives to Russian gas.[325] One of the ways through which the EU wants to decrease its dependence on Russian gas and increase its energy independence from Russian gas is importing Iranian LNG.[326]
The European Commission mentioned in its policy document on the EU strategy for liquefied natural gas and gas storage that the diversification of the EU gas supplies is a key goal for the EU in connection with the EU energy union.[327] The EU wants to increase its LNG imports and improve its LNG storage capacity in order to make the EU gas system more flexible and

[317] Grobarčíková, Sosedová and Kalina, 2016, p.33.
[318] Grobarčíková et al.,2016, p.37.
[319] Houshisadat 2015, p.459.
[320] Houshisadat, 2015, p.459.
[321] Houshisadat, 2015, p.459.
[322] Cornot-Gandolphe et al., 2003, p.6.
[323] European Commission, 2015a, p.5.
[324] Tichý and Odintsov, 2016, p.110.
[325] Shokri Kalehsar , 2016a, p.543.
[326] Houshisadat, 2015, p.470-471.
[327] European Commission, 2016, p.2.

diverse.[328] For the EU, LNG will remain and grow as a large source of diversification in the years ahead.[329] The creation of liquid gas hubs with several gas suppliers is improving the EU's gas supply security.[330] The EU's present LNG terminals bring acceptable overall regasification capacity and further LNG terminals are planned in the EU:[331]

Map 2. LNG terminals and projects in Europe.



Damianova (2015, p.78).[332]

In a policy document of the European Commission of 2008, it was also mentioned that "Iran should represent a further significant supply source for the EU, *when political conditions permit"*.[333] After the Implementation Day of the JCPOA, political conditions allow the EU to import Iranian LNG.

The EU is interested in importing Iranian LNG but in connection with Iranian LNG the EU's Energy Commissioner, Miguel Arias Cañete, made clear that Iran's price expectations remains a problem.[334] In addition, the EU's Energy Commissioner argued that Iran needs to reduce its price expectations in order to be an alternative to cheap Russian gas.[335]

So, besides importing piped gas, the EU also wants to import LNG in order to increase its energy security through gas supply routes diversification[336] Moreover, besides through importing piped Iranian gas, the EU also wants to increase its energy security through

[328] European Commission, 2016, p.2.
[329] European Commission, 2014. p.15.
[330] European Commission, 2015a, p.4.
[331] European Commission, 2016, p.4.
[332] Damianova, 2015, p.78.
[333] European Commission, 2008, p.4.
[334] Norman, 2016.
[335] Norman, 2016.
[336] European Commission, 2016, p.2.

importing Iranian LNG.[337] From the Implementation Day of the JCPOA on, the EU is allowed to import Iranian LNG.[338]

3.3: The EU's attitude towards Iran's price demands for its natural gas

Iran is aiming Europe as a significant destination for Iranian LNG export.[339] However, the EU's Energy Commissioner Miguel Arias Cañete visited Tehran in April 2016, in order to speak with several Iranian energy ministers and the EU's Energy Commissioner made clear that Iran's price demands remains a huge problem.[340] In addition, the EU's Energy Commissioner made clear that Iran has to decrease its price expectations in order to be an alternative to not expensive Russian gas supplies.[341]

3.4: Iran's large gas reserves

According to a report of the British Petroleum (BP), Iran had the world's largest natural gas reserves in 2015.[342] In the year 2015, Iran's proven natural gas reserves were 34 TCM.[343]
In a European Commission's policy document of 2008, it was mentioned that "Iran should represent a further significant supply source for the EU, when political conditions permit"[344].

3.5: Iran's degraded energy sector

The many years of sanctions have negatively influenced Iran's gas sector and Iran needs huge (foreign) investments and technological upgrading of its gas sector.[345] The EU imposed sanctions on Iran in 2010 and 2012 and it disadvantaged Iran's energy sector very much, because Iran's access to European energy markets, technology and capital from other countries was blocked.[346] In the year 2016, Iran's petroleum minister Zanganeh has stated that Iran's energy industry necessitates investments of 100 billion dollars and more.[347] So, the concerned sanctions have caused several consequences such as a deficit of technological and financial resources for Iran and a delay of the Iranian LNG projects[348] and it is worthy to mention here that the current Iranian petroleum minister, Zanganeh, has stated in the year 2016 that "Iran can become LNG exporter to the EU in the middle of next decade".[349]

[337] European Commission, 2016, p.2; European Commission, 2008, p.4; European Commission, 2014, p.16.
[338] Modrall, 2016, p.40; Tichý and Odintsov, 2016, p.110.
[339] Houshisadat, 2015, p.466.
[340] Norman, 2016.
[341] Norman, 2016.
[342] British Petroleum, 2015, p.20.
[343] British Petroleum, 2015, p.20.
[344] European Commission, 2008, p.4.
[345] Pant, 2016, p.2.
[346] Tichý and Odintsov, 2016, p.113.
[347] Jalilvand, 2017, p.6.
[348] Shokri Kalehsar, 2016a, p.550.
[349] Trend News Agency, 2017.

3.6: Iran's foreign policy on exporting LNG to the EU

Seven Iranian LNG production facilities are under construction.[350] Moreover, Iran is aiming Europe as a significant destination for Iranian LNG export.[351] Iran views LNG exports to the EU as a contemporary priority.[352] The managing director of the National Iranian Gas Company (NIGC), Hamid Reza Araqi, stated that Iran is intending to supply gas to Europe in the form of LNG.[353] Moreover, the EU Energy Commissioner Miguel Arias Cañete was in Tehran in April 2016 because of an EU mission that was about expanding commercial and political relations with Iran[354] and the Iranian energy ministers who talked with the EU Energy Commissioner made clear that Iran is prioritizing the export of LNG to the EU over the export of piped gas to the EU in the present time and in the next years.[355] Iran made clear to the EU Energy Commissioner that Iran has no interest in extending gas pipelines to the EU in the near future, because that would necessitate too much time and that would also involve concluding important transit deals with regional rivals.[356]

The current Iranian Oil minister, Bijan Namdar Zanganeh declared on November 21, 2015, that Turkey's current transit pricing demands are too high, and that exporting LNG to Europe through ships is a better option.[357] In the year 2017, the Iranian petroleum minister made clear that "Iran can become LNG exporter to the EU in the middle of next decade".[358]

An important reason behind Iran's will for LNG capabilities is that Iran wants to sell and transport its natural gas exports to international markets without needing neighboring countries, because of the existence of tensed political relations among Iran and its neighboring countries.[359] One of those neighboring countries is Turkey.

So, Iran is interested in exporting gas to the EU and exporting LNG to the EU is Iran's current first priority.[360] Iran's priority to export LNG to the EU is also in accordance with its Resistance Economy doctrine as will be explained in the next paragraph.

3.7: Iran's foreign policy on exporting LNG within the framework of the Iranian "Resistance Economy" doctrine

In the year of 2010, Iran's supreme leader introduced the Resistance Economy doctrine.[361] The Resistance Economy doctrine has the purpose to make the Iranian economy resistant to all foreign economic influential factors in the long run, including western sanctions and worldwide financial crisis.[362]According to Iran, there are Western efforts to damage the

[350] Houshisadat, 2015, p.471
[351] Houshisadat, 2015, p.466.
[352] Shokri Kalehsar, 2016a, p.546.
[353] Sputniknews (2016).
[354] Norman, 2016.
[355] Norman, 2016.
[356] Norman, 2016.
[357] Unver, 2016, p.138.
[358] Trend News Agency, 2017.
[359] Ünal, 2016, p.24.
[360] Shokri Kalehsar, 2016a, p.550.
[361] Piran and Dorche, 2015, p.647.
[362] Toumaj, 2014, p.2.

Iranian economy with the purpose to overthrow the Iranian regime.[363] According to Iran's current supreme leader Khamenei, a strong Iranian economy is important for Iran's overall security.[364] Through the Resistance Economy doctrine, Iran wants to minimize the damage that is caused by countries that impose sanctions on Iran and Iran wants to be less dependent on those countries that impose sanctions on Iran.[365] For example, the EU imposed sanctions on Iran in 2010 and 2012 and it disadvantaged Iran's energy sector very much, because Iran's access to European energy markets and technology were blocked and the access to capital from other countries was also blocked.[366]

As mentioned in the chapter on the pipeline dimension, Iran wants to use energy trade for its political purposes within the framework of the Resistance Economy doctrine on the long term.[367] Additionally, in accordance with the Resistance Economy doctrine, Iran wants to diversify its gas export routes and destinations in order to reduce the consequences of possible future sanctions.[368] Iran wants to **increase its LNG export capability** because it is advantageous for Iran's diversification of its gas export routes and destinations, and it gives Iran a **strategic flexibility** during a new possible era of sanctions in the future.[369] Iran wants to diversify its gas exports in order to **reduce its dependence** on natural gas importing countries that imposed sanctions on Iran.[370]

So, Iran's preference to export LNG to the EU[371] **and Iran's preference to not export piped gas to the EU** is in line with Iran's Resistance Economy goal of having **strategic flexibility** during a new possible era of sanctions in the future.[372]

As explained in chapter 1, LNG can be characterized by the possibility of short duration of its contracts and its *flexibility* over distances,[373] while the selling, transportation and buying of piped gas can be characterized by the usual long-term contracts and long-term price agreements.[374] LNG ports offer more flexibility than pipelines because LNG ports can receive from different gas suppliers, while pipelines generally import only from fixed gas exporters.[375] Opposed to gas transport by pipelines, LNG suppliers can transport their shipments wherever the price is lucrative.[376]

[363] Toumaj, 2014. p.4.
[364] Toumaj, 2014. p.7.
[365] Ünal, 2016, p.13.
[366] Tichý and Odintsov, 2016, p.113.
[367] Ünal, 2016, p.7.
[368] Ünal, 2016, p.20.
[369] Ünal, 2016, p.8.
[370] Ünal, 2016, p.20.
[371] Houshisadat, 2015, p.466.
[372] Ünal, 2016, p.8.
[373] Houshisadat, 2015, p.459.
[374] Jansen, 2014, p.8.
[375] Houshisadat, 2015, p.462.
[376] Shokri Kalehsar, 2016a, p.542.

3.8: Through its foreign policy on importing Iranian LNG, the EU is seeking for relative gains and not for absolute gains

Besides importing piped gas, the EU also wants to import LNG in order to increase its energy security through gas supply routes diversification[377] Moreover, besides through importing piped Iranian gas, the EU also wants to increase its **energy security** through importing **Iranian LNG**.[378]

With regard to the EU's goal to increase its energy security, the EU is **not indifferent** to the gains of other states. As mentioned in chapter 1, according to the concept of absolute gains, **states are indifferent to the gains of other actors.**[379] States make decisions based upon their judgments of their own welfare, **not that of others.**[380] There are some liberal constraints for the EU such as the Iranian price demands and the poor state of the Iranian energy sector, but what is crucial is that part of the concept of absolute gains which says that according to the concept of absolute gains, states are **indifferent to the gains of other actors.**[381]

The EU does care about how well they perform relative to Russia. Russia has the capability and the power to significantly disrupt gas supplies to the majority of Central – and Eastern European EU member states.[382] **One of the ways through which the EU wants to counter this relative power of Russia is importing Iranian LNG.**[383] **The EU is motivated to use Iranian gas in order to reduce its energy dependence on Russia and to increase its energy independence from Russia.**[384]

Through its foreign policy on importing Iranian LNG, the EU is seeking for relative gains, and not for absolute gains.

3.9: Through its foreign policy on exporting LNG to the EU, Iran is seeking for relative gains, not for absolute gains

The Resistance Economy doctrine was a response to the sanctions that were imposed on Iran.[385] According to Iran, there are Western efforts to damage the Iranian economy with the purpose to overthrow the Iranian regime.[386] According to Iran's supreme leader Khamenei, a strong Iranian economy is important for Iran's overall security.[387] Through the Resistance Economy doctrine, Iranian economic policy-making is a part of a national security doctrine.[388] There are some liberal constraints for Iran such as the gas prices in Europe,[389] but what is crucial is that part of the concept of absolute gains which says that according to the concept of

[377] European Commission, 2016, p.2.
[378] European Commission, 2016, p.2; European Commission, 2008, p.4; European Commission, 2014, p.16.
[379] Powell, 1991, p.1303.
[380] Mowle, 2003, p. 567.
[381] Powell, 1991, p.1303.
[382] Yafimava, 2015, p. 2.
[383] Houshisadat, 2015, p.470-47
[384] European Commision, 2014, p.2, p.16; Houshisadat, 2015, p.470-471.
[385] Jalilvand, 2017, p.2.
[386] Toumaj, 2014. p.4.
[387] Toumaj, 2014. p.7.
[388] Toumaj, 2014. p.2
[389] Tanchum, 2015, p.8.

absolute gains, states are **indifferent to the gains of other actors.**[390] States make decisions based upon their judgments of their **own welfare, not that of others.**[391] However, through the Resistance Economy doctrine, **Iran cares about how well Iran performs relative to other states.**

The Resistance Economy doctrine has the purpose to make the Iranian economy **resistant to all foreign economic influential factors in the long run, including western sanctions and worldwide financial crisis.**[392] Iran wants to diversify its gas exports in order to **reduce its dependence** on natural gas importing countries that imposed sanctions on Iran.[393] Within the framework of the Resistance Economy doctrine, Iran wants to **increase its LNG export capability** because it is advantageous for Iran's diversification of its gas export routes and destinations, and it gives Iran a **strategic flexibility during a new possible era of sanctions in the future**.[394] **So, Iran's preference to export LNG to the EU**[395] **and Iran's preference to not export piped gas to the EU** is in line with Iran's Resistance Economy goal of having **strategic flexibility** during a new possible era of sanctions in the future.[396] Through its foreign policy on exporting LNG to the EU, Iran is seeking for relative gains, not for absolute gains.

[390] Powell, 1991, p.1303.
[391] Mowle, 2003, p. 567.
[392] Toumaj, 2014. p.2
[393] Ünal, 2016, p.20.
[394] Ünal, 2016, p.8.
[395] Houshisadat, 2015, p.466.
[396] Ünal, 2016, p.8.

Chapter 4: The conclusion

The research question will be answered in the next paragraph on the basis of the empirical results of the chapters 2 and 3. Moreover, the implication of the answer of the research question will also be discussed in the conclusion. Furthermore, the limitations of this research will also be discussed in the conclusion.

4.1: Both the EU and Iran are seeking for relative gains, not for absolute gains

As mentioned in chapter 1, the research question is:

To what extent are absolute gains and relative gains sought by the EU and Iran by means of their gas relationship after the accomplishment of the JCPOA in July 2015?

Russia has the capability and the power to significantly disrupt gas supplies to the majority of Central- and Eastern European EU member states.[397] The EU wants to reduce its energy dependence on Russia and increase its energy independence from Russia through importing Iranian pipeline gas via the Southern Gas Corridor.[398] In other words, the EU wants to counter the concerned relative power of Russia through connecting Iranian gas to the Southern Gas Corridor's pipeline network.[399] One of the other ways through which the EU wants to decrease its dependence on Russian gas and increase its energy independence from Russian gas is importing Iranian LNG.[400] In other words, one of the other ways through which the EU wants to counter this relative power of Russia, is importing Iranian LNG.[401]
Besides through importing piped Iranian gas, the EU also wants to increase its energy security through importing Iranian LNG.[402] With regard to the EU's goal to increase its energy security, the EU is **not indifferent** to the gains of other states. According to the concept of absolute gains, **states are indifferent to the gains of other actors.**[403] States make decisions based upon their judgments of their own welfare, **not that of others.**[404] However, the EU does care about how well it performs relative to Russia. As explained at the beginning of this paragraph, the EU wants to diversify away from Russian gas in order to increase its energy independence from Russia (in order to reduce its energy dependence on Russia).
So the EU is seeking for relative gains through aiming to import both piped Iranian gas and Iranian LNG after the nuclear deal of July 2015.
In the year of 2010, Iran's supreme leader introduced the Resistance Economy doctrine.[405] The Resistance Economy doctrine has the purpose to make the Iranian economy resistant to

[397] Yafimava, 2015, p. 2.
[398] Ünal, 2016, p.32.
[399] European Commision, 2014, p.2, p.16.
[400] Houshisadat, 2015, p.470-471.
[401] Houshisadat, 2015, p.470-471.
[402] European Commission, 2016, p.2; European Commission, 2008, p.4; European Commission, 2014, p.16.
[403] Powell, 1991, p.1303.
[404] Mowle, 2003, p. 567.
[405] Piran and Dorche, 2015, p.647.

all foreign economic influential factors in the long run, including western sanctions and worldwide financial crisis.[406] According to Iran, there are Western efforts to damage the Iranian economy with the purpose to overthrow the Iranian regime.[407] According to Iran's current supreme leader Khamenei, a strong Iranian economy is important for Iran's overall security.[408] Through the Resistance Economy doctrine, Iran wants to minimize the damage that is caused by countries that impose sanctions on Iran and Iran wants to be less dependent on those countries that impose sanctions on Iran.[409]Through the Resistance Economy doctrine, **Iranian economic policy-making is totally a part of a national security doctrine.**[410] In accordance with the Resistance Economy doctrine, Iran wants to use energy trade for the political purposes within the framework of the Resistance Economy doctrine.[411] **So**, **gaining a higher absolute level of economic welfare is not a goal in itself in the case of Iran**, because economic policies **are totally a part of a natural security doctrine** through which Iran want to have relative gains towards those states that had imposed sanction on Iran. So, absolute gains are not sought by Iran by means of the EU-Iran gas relationship after the nuclear deal of July 2015, because gaining economic welfare is not a goal in itself in the case of Iran, but rather an instrument of a national security doctrine (the Resistance Economy doctrine). Iran's preference to export LNG to the EU[412] and Iran's preference to not export piped gas to the EU is in line with Iran's Resistance Economy goal of having **strategic flexibility** during a new possible era of sanctions in the future.[413]
So, Iran wants to achieve a great degree of (economic) independence through the Resistance Economy doctrine.[414] It is realist foreign policy that really substantiates and drives the Iranian foreign policy on exporting natural gas to the EU and not liberal foreign policy. **Both the EU and Iran are seeking for relative gains by means of their gas relationship, not for absolute gains.**

4.2: The important implication of the answer of the research question: Given that Iran has more power resources than the EU in connection with their gas relationship, Iran is likely to have leverage over the EU during possible gas sales negotiations and Iran is likely to be able to realize its preference to export LNG to the EU and to not export piped gas to the EU.

So in the last paragraph, the research question has been answered: both the EU and Iran are seeking for relative gains by means of their gas relationship. Moreover, both the EU and Iran are not seeking for absolute gains by means of their gas relationship. But the answer of the research question has also an important implication.

[406] Toumaj, 2014. p.2
[407] Toumaj, 2014. p.4.
[408] Toumaj, 2014. p.7.
[409] Ünal, 2016, p.13.
[410] Toumaj, 2014. p.2
[411] Ünal, 2016, p.7.
[412] Houshisadat, 2015, p.466.
[413] Ünal, 2016, p.8.
[414] Toumaj, 2014. p.27.

Iran has leverage over the EU during possible negotiations on the sale of Iranian gas to the EU, because Iran is the possessor of the world's largest gas reserves[415] and the EU has the urgency to diversify away from Russian gas and, theoretically, Iran could enable the EU to significantly diversify away from Russian gas. Iran is already exploiting its position as possessor of the world's largest gas reserves[416] by demanding high gas price demands towards the EU and according to the EU the current Iranian gas price demands are too high compared to the alternative cheap Russian gas supplies.[417]
Realism expects that power resources provide leverage in negotiations.[418] According to realism, international bargaining outcomes are tended to be determined by the preferences of the states that have more power resources (the more powerful states).[419] As mentioned before, Iran's preference to export LNG to the EU[420] is in line with Iran's Resistance Economy, and given that Iran is likely to have leverage over the EU during possible gas sales negotiations, Iran is very likely to be able to realize its preference to export LNG to the EU and to not export piped gas to the EU. The likeliness that the EU and Iran will make an agreement on the sale of Iranian LNG to the EU **is higher than the likeliness** that the EU and Iran will make an agreement on the sale of Iranian pipeline gas to the EU.

5.4: limitations of this research

This research focused on *the EU as a whole* as a unit of analysis. The different EU member states have a different dependency on Russian gas, and subsequently, the different EU member states have a different urgency with regard to using Iranian gas as an alternative to Russian gas. This research did not focus on the different EU member states' urgency to use Iranian gas as an alternative to Russian gas. Due to limitations and rules on the extent of a master thesis, it was justifiable to conduct the research in depth into the gas relationship of Iran and *the EU as a whole* after the JCPOA of July 2015.
Furthermore, this research focused on the EU-Iran gas relationship within the framework of the JCPOA. This research had the assumption that the EU-Iran gas relationship is likely to exist as long as Iran complies with its nuclear-related duties. However, the Trump administration does not have a positive stance on the realization of this nuclear deal, and the Trump administration has made clear that it will re-consider the whole nuclear deal. The US is one of the signatories to the JCPOA. This research did not focus on a possible withdrawal of the Trump administration from the nuclear deal (even if Iran complies with the nuclear related duties) and the subsequent consequences for the EU-Iran gas relationship.

[415] British Petroleum, 2015, p.20.
[416] British Petroleum, 2015, p.20.
[417] Norman, 2016.
[418] Dinar, 2000, p.387.
[419] Dinar, 2000, p.387.
[420] Houshisadat, 2015, p.466.

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