



**ÇANKAYA UNIVERSITY
GRADUATE SCHOOL OF SOCIAL SCIENCES
THE DEPARTMENT OF ECONOMICS**

MASTER THESIS

**THE EFFECT OF ENERGY IMPORT FROM RUSSIA ON TURKEY'S
CURRENT ACCOUNT DEFICIT**

TUNA ERKILIÇ

AUGUST 2016

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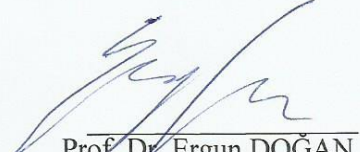
Title of Thesis: **THE EFFECT OF ENERGY IMPORT FROM RUSSIA ON
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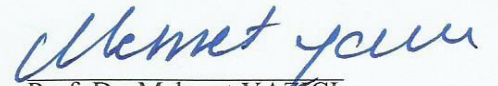
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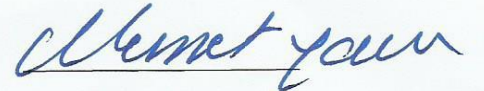

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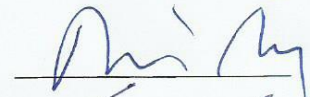
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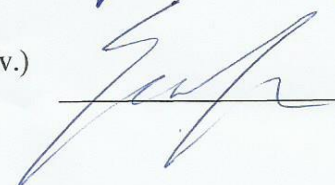
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ÖZ

RUSYA'DAN İTHAL EDİLEN ENERJİNİN TÜRKİYE CARİ AÇIĞINA ETKİSİ

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Ağustos 2016, 62 sayfa

Türkiye'nin enerji ithal etmesi ülkenin cari açığını çok fazla etkilemektedir. Bu tezde Rusya'dan ithal edilen enerjinin Türkiye'nin cari açığına nasıl olumsuz şekilde etkilediği incelenmiştir. Öncelikle enerji ekonomisinin ne olduğunu ve bunun Rus uluslararası ilişkilerindeki öneminden bahsedilmiştir. Daha sonra Rusya'dan ithal edilen enerji miktarları ve Rusya – Türkiye arasındaki ana ekonomik endeksler gösterilmiştir. Ekonometrik metotta öncelikle birim kök testi değişkenlerin durağanlığını kontrol etmek için kullanılmıştır. En Küçük Kareler (EKK) yöntemi ile de nihai model bulunmuştur. Çıkan sonuçlar ve oranlar ile Rusya'dan ithal edilen enerjinin Türkiye'nin cari açığını olumsuz etkilediğini anlayabiliriz.

Ampirik sonuçlar ve ekonometrik model enerji ithalatı arttıkça cari açığın arttığını desteklemektedir. Bunun yanında, ülkemizin Rusya'ya enerji ihracı arttıkça da cari açığımız küçülmektedir. Yüksek enerji talebi nedeniyle Reel Gayri Safhi Yurtiçi Hasılamız (GSYİH) yükseldikçe, ülkemizin cari açığı da artmaktadır. Türkiye cari açığını ile Rusya'ya olan bağımlılığını azaltmak istiyorsa kendi yenilenebilir enerji kaynaklarını kullanmalıdır.

Anahtar Kelimeler: Enerji, Doğal Gaz, Cari Açık, İhracat, İthalat, Rusya.

ABSTRACT

THE EFFECT OF ENERGY IMPORT FROM RUSSIA ON TURKEY'S CURRENT ACCOUNT DEFICIT

ERKILIÇ, Tuna

Master Thesis

Graduate School of Social Sciences

M.Sc. Financial Economics

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August 2016, 62 pages

Turkey's energy import effects hugely to its current account deficit. In this thesis, I examined how import of Russian energy affected Turkish current account deficit negatively. Firstly, I mentioned that what energy economy is and its importance of Russian international relations. Then, I showed import levels of energy and all main economic indexes between Russia and Turkey. In my econometric method I used unit-root tests for variables to check their stability. Then Ordinary Least Square method was used to find the final model. With these numbers and ratios, we can clearly understand that Turkish current account deficit is affected negatively by energy import volume from Russia.

Empirical results and econometric model also supported that when energy import increases, Turkish current account deficit also increases. In contrast, if Turkey sells energy products to Russia, Turkish current account deficit decreases. When Real Gross Domestic Product (GDP) increases, Turkish current account deficit also increases because of high demand of energy. In order to decrease national current account deficit and dependancy from Russia, Turkey should use its natural renewable resources.

Keywords: Energy, Natural Gas, Current Account Deficit, Export, Import, Russia.

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ABBREVIATIONS AND SYMBOLS

\$: The US Dollar
ADF	: Augmented Dickey Fuller
AIC	: Akaike Information Criteria
bbl/d	: Billion barrel per day
CIA	: Central Intelligence Agency
EIA	: Energy Information Administration
EPDK	: Energy Market Regulatory (Enerji Piyasaları Düzenleme Kurumu)
EU	: The European Union
GDP	: Gross Domestic Product
KPSS	: Kwiatkowski, Phillips, Schmidt, Shin
LM	: Breusch–Godfrey Test
m ³	: Cubic meter
NATO	: North Atlantic Treaty Organization
OECD	: Organisation for Economic Co-operation and Development
OLS	: Ordinary Least Square
OPEC	: Organization Petroleum Export Countries
PP	: Phillips Perron
SCO	: Shanghai Cooperation Organization
SIC	: Schwarz Information Criteria
TCMB	: Turkish Central Bank (Türkiye Cumhuriyet Merkez Bankası)
TÜİK	: Turkish Statistical Institute (Türkiye İstatistik Kurumu)
UK	: The United Kingdom
UN	: United Nations
USA	: The United States of America
USSR	: Union of Soviet Socialist Republics
WW1	: World War 1
WW2	: World War 2

INTRODUCTION

Increasing population and energy demand of the countries makes energy competition harder among countries. There is a huge competition at the beginning of the process. Finding a source, its marketing and transferring are all the part of that process and all of them includes huge competition. That's why there is no easy choices with energy supply security. In addition, it is not esay that energy can be accessable nor sustainable. Having a diversity of supplier and transporting is also hard. To deal with that problem, countries should try to their best to access cheap, clean, safe, and sustainable energy sources.

The composition of energy consumption of the World has been changing. Not only developed countries, but also developing countries' energy demands has increased, especially China. Usage percentage of coal will be decreasing; petroleum and natural gas will be increasing. Consumption of renewable resources like water and wind are also increasing according to specialists. Middle Asia, Hazars and Middle East will be the energy production areas like today too. When the country developes, its energy needs also increases. That's why saving, productivity in the field of energy is becoming more important than the past. The importance of usage of different energy resources, like new, renewable and sustainable ones, is also becoming significant now.

The rich countries, in terms of energy sources, uses that richness as an efficient diplomatic tool and all countries pay special attention to energy security. They know that if they are foreign-dependant for energy, their policy possibilities become weaker. They think that energy not only need for economic development, but also main point of national security. Developed countries seeks new opportunities for their citizens' benefit with the help of energy policies.

Primary energy sources will keep its importance in near future too. In addition, recent events in the Middle East, like civil wars, conflicts and occupations, also show us that big and develoed countries will also think the same way. All these things (wars, conflicts) are happening in the environment of Turkey. Although there are

some specialists are thinking differently, in 2020, primary energy sources like coal, petroleum and natural gas will be the most consumed energy sources at that time. It is estimated that petrol will be used of approximately 40 %, coal will be 30 % and natural gas will be 25 % of all types of energy sources. Shortly, dominant place of primary sources won't be changed in near future.

After the collapse of the Soviet Union, Russia has one of the richest country in terms of natural resources. Turkey imports energy from Russia. Turkey imports nearly its 50 % of annual natural gas needs from Russia. This dependancy affects Turkey's current account deficit negatively.

That study examines the Russian energy geopolitics and its nature that affects current account deficit. Relationship between Turkish economy and energy is tried to be explained in this study.

CHAPTER I

1.1. ENERGY ECONOMY

1.1.1. Energy

Since ancient times, societies have been conducting their daily lives with the assistance of different devices. Surely, what they need most is always energy. By means of energy, we can warm our houses, transport products or utilise technology. People need energy to live, as their bodies themselves need energy to maintain their life.

We gain energy from energy sources. Energy sources can be renewable or unrenewable. Wind, water and geothermal resources are the examples of renewable resources; oil, petroleum, gas are the examples of unrenewable resources. Renewable resources make minimum harm to the nature. However, renewable resources cannot be found everywhere and their energy capacity is limited as compared to unrenewables. In this thesis, we focus on unrenewable energy resources. These resources have high energy capacity; however, they can make damage to the nature if they are used uncautiously. Deepwater Horizon Oil Spill is an unfortunate example of how these resources can make damage to the earth. In 2010, there was an oil spill from BP stations in gulf of Mexico. The US Government estimated the total discharge at 4.9 million barrels (780,000 m³)¹. These disasters affects nature to a high degree.

There are many different types of energy classifications. One distinction is between the primary and secondary energy types. Primary energy resources are found in nature and don't need to be processed by human beings. Primary energy resources are embodied in natural resources, prior to undergoing any man-made

¹http://www.uscg.mil/foia/docs/dwh/fosc_dwh_report.pdf (Data Accessed: 12/20/2014)

interventions or transformations. Examples of primary energy resources include coal, crude oil, sunlight, wind, running rivers, vegetation, and uranium.²

Secondary energy resources are gained through transforming the primary energy sources. In other words, secondary energy resources have to be processed or refined, utilising primary energy sources.³ For instance, to produce benzine or gas, crude oil must be distilled in the refinery. So we must use primary energy sources to obtain secondary energy products.

1.1.2. Energy Economy

Energy economy is the science which analyzes the relation between energy resources and economic activity.⁴ Because the energy is a strategic production input, it is simultaneously an economic and international policy instrument. Energy economy deals with countries' energy supply and demand. The United States of America (the USA) is the biggest energy consumer on earth. China comes second in place after the USA. The aim of the energy economy policies to provide energy efficiently with suitable prices, which creates national and international competitiveness as well. In addition, these energy policies directly or indirectly influence countries' current account deficit, import coverage ratio of exports, and even the basic economic data such as unemployment.

Energy consumption is one of the most basic indicator of the level of development of countries and individuals. The USA, China and the European Union (the EU) are the biggest energy consumers on earth.⁵ There are unique features of the energy sector. The production of energy, storage, requires a high level of technology transportation and distribution. Interruption or absence of energy of communities forces countries to involve regional or local policies.⁶

² Kydes, A. (2011). Primary energy. Retrieved from <http://www.eoearth.org/view/article/155350> (Data Accessed 12/22/2014)

³ Aydın, Doç.Dr. Levent (2014). Enerji Ekonomisi ve Politikaları page:25

⁴ Prof. Dr. M. Ali Bilginoglu, TÜRKİYE'NİN ENERJİ SORUNLARI VE ÇÖZÜM ARAYIŞLARI

⁵ <http://www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm?tid=3&pid=26&aid=2> (Data Accessed 12/20/2014)

⁶ Aydın, page:42

Although energy oriented policies have been used for more than hundred years, energy economy was accepted as a science under economics since the 1973 oil crisis.⁷ In 1960, 11 countries that export oil, established OPEC (Organization Petroleum Export Cooperation). Because of the USA's and European Countries' pro-Israel involvement in Arab – Israel War, Arabic countries ,members of OPEC, made petrol prices higher. The price of oil had risen from \$3 per barrel to \$12.⁸ The rise in prices affected the countries' production. A supply shock was occurred in the market. After 1973 crisis, many political economists and academicians began to take on interest for energy works and energy economy was started to be characterised as a science.

1.2. GEOPOLITCS OF ENERGY AND ENERGY SECURITY

1.2.1. Geopolitics of Energy

Even though energy economy was accepted as a science only after the 1973 crisis, countries had already been shaping their policies according to energy needs before that time. Geopolitics of energy and security is old topic of countries. When English Prime Minister Winston Churchill took the decision to build fleet based on petroleum instead of coal to be faster and better than German fleet in WW1, geopolitics of energy became concern of country's policies.⁹ This decision gave the high importance to area of Caspian Sea, Middle East and Russia's resources very much. For example, oil sources in Middle East were an economic causes of World War I (WW1). United Kingdom (UK) was eager to capture these sources from Ottoman Empire. After the war, UK controlled potentially 525 billion barrel of oil in Iraq, Egypt and Palestine aftermath the war. That example shows that energy is one of the primary policy factor for the countries. In 1900's oil was being produced in

7 Aydın, page :43

8 Issawi, Charles. "The 1973 Oil Crisis and After". *Journal of Post Keynesian Economics*/Winter 1978-79, Vol.1, No.2

9 Daniel Yergin, "Ensuring Energy Security", *Foreign Affairs*, cilt 85, no.2, Mart-Nisan 2006, s.69-70.

Russia and USA. Because of the industrial revolution in UK, big industrial countries, such as UK, France, Germany and Russia needed oil and petroleum products. That's why WW1 was occurred in Europe then were joined with all around the world.

According to many scholars, America's first and second Gulf War's secret agenda was Iraq's oil and gas reserves. After the 2003 USA could get control of the refineries in Iraq.

Today as in the past energy as a commodity in today's world countries and as an instrument of economic policy that directs the world, is the main determinant of social and geographical layout. This situation is not expected to change in the near future.

1.2.2. Energy Security

The meaning of "Energy Security" isn't identified by Energy Economy Scholars with the same words. The traditional definition of energy security is "consumers must access to the limited sources, additionally that access should be made it in anyway. In this approach, the traditional elements of the energy security are oil suppliers (producers) and the demand centers (consumers) which are defined as market makers."¹⁰

Actually producers, consumers and transit countries understand the meaning of energy security with different definitions, and it is the main cause of the problem. According to consumers energy security means state control on the market and cheaply and uninterrupted supply to their country. In contrast, for producer countries, it means higher prices and a liberal energy sector which is available in market economy principles, According to the transit country, energy security means that the pipeline should pass through its territory and by that gaining geopolitical importance. For example, as a manufacturer country, which is Russia, energy security means both the country's energy resources and energy sectors establish hegemony over the energy sector to sell this energy to high prices in the world market. It seems to be in

¹⁰ Çelikpala, Mitat. "Enerji Güvenliği –NATO'nun Yeni Tehdit Algısı" page:6.

the form of a state monopoly and use it as a tool in foreign policy.¹¹ So, Russia's energy security is the meaning of insecurity of other nations. According to EU energy security means uninterrupted of gas supply to EU territories. According to USA, energy security means sale of oil at low prices in US dollar.

The most important aspect of energy security is the security of resource points or areas of energy output centers. Throughout the history, conflict in areas of energy resources, has affected the world energy markets deeply, has increased the energy prices and unemployment and have serious loss on countries' economic levels which have bounded on energy deeply.

Military choices have been applied by the countries. The German Army during the World War II, walked on the Caucasus to obtain the Baku oil¹². Because of nationalization of English Petrol companies in Iran, Mohammed Mussadegh's government was overthrown by the CIA in 1953¹³. With significant energy resources, Democratic Republic of Congo's first prime minister Patrice Lumumba who struggled for independence was overthrown in 1960 by western Powers¹⁴. After the annexation of Kuwait by Saddam Hussein in 1990, a power of multinational US-led mission in Iraq fought for Kuwait recovery and after the overthrow of Saddam, the USA entered to Iraq¹⁵. As can be seen, great powers in order to ensure energy security, they don't hesitate to resort to military sanctions.

Another aspect of ensuring the energy security of a nation, is not to be dependent only one country and diversify the types of energy in the country. After the OPEC Oil Crisis in 1973, countries considered again their dependence and diversity of energy in geopolitical meaning. EU countries made meetings in European Councils of that and they began to take out to oil in North Sea and USA turned back its route to Alaska as a new oil and energy area. Energy transportation is also important

¹¹Primakov, Yevgeniy. "Rusya'sız Dünya". Page: 126-127

¹² Rosemarie Forsythe, *The Politics of Oil in the Caucasus and Central Asia: Prospects for Oil Exploitation and Export in the Caspian Basin*, Oxford, Adelphi Paper 300, 1996, s. 9-10

¹³ Henry Kissinger, *Diplomasi*, Çev.İbrahim H. Kurt, 3. Bs., İstanbul, Türkiye İş Bankası Kültür Yayınları, 2002, s. 490-491.

¹⁴Mustafa Kibaroğlu, "Enerji Kaynakları ve Ulaşım Yollarının Uluslararası Güvenliğe Etkileri", "Dünya ve Türkiye'deki Enerji ve Su Kaynaklarının Ulusal ve Uluslararası Güvenliğe Etkileri" 15-16 Ocak 2004: Bildiriler, Soru-Cevaplar, Katkılar ve Konuşma Metinleri, İstanbul, Harp Akademileri Komutanlığı Yayınları, 2004, s. 202-203.

¹⁵ Rasul Galiev, **Petrol ve Politika** çev. Fatma Feron (İstanbul: Ar Matbaacılık, 1997), 106-107

aspect of energy security. Energy hub countries (Turkey wants to be one of them) ensure its geopolitical and economic power because of it.

1.3. MAIN STREAM ENERGY RESOURCES AND ROUTES

1.3.1. Crude Oil

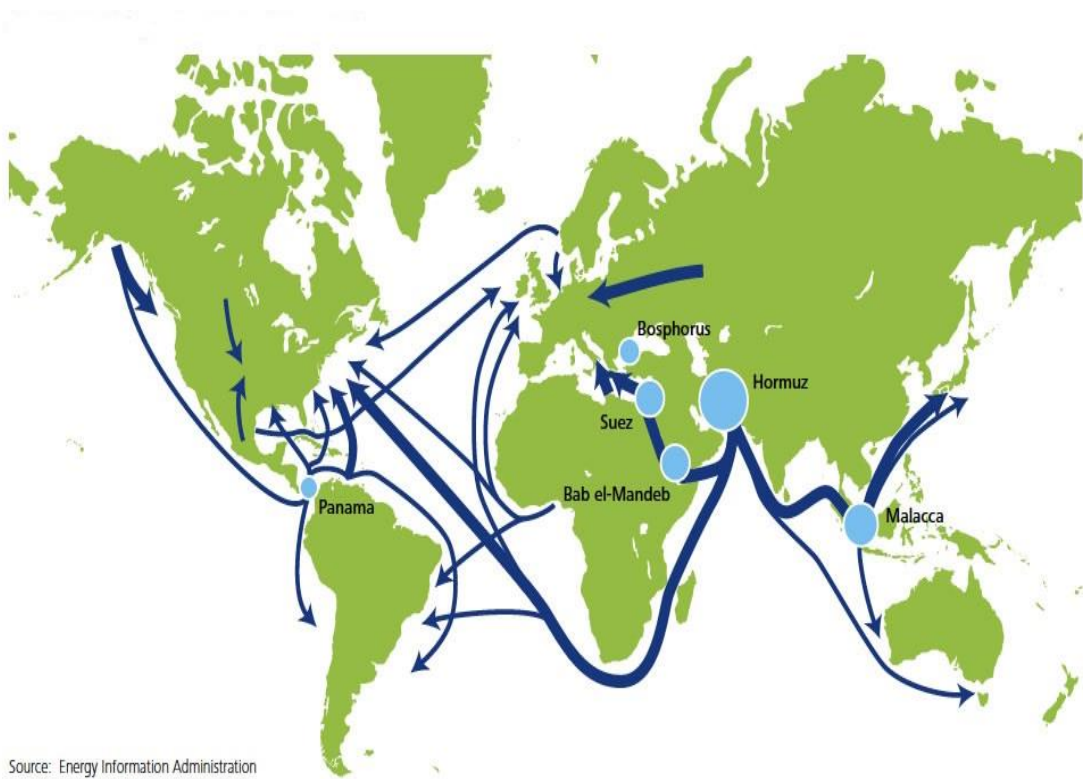
For oil reserves, experts make two different identification of resources. They are proven and unproven reserves of oil. Unproven reserves means they have the same results for geological tests but for technical or natural hardness, they cannot be proven with a hundred percent. So, big oil companies generally stay away from these fields for high costs. In this thesis, we focus on proven resources.

Table 1. For proven resources oil reserves in the world

	Countries	Proven Reserves (Billion of Barrels)
1	Saudi Arabia	267.0
2	Venezuela	211.2
3	Canada	173.6
4	Iran	151.2
5	Iraq	143.1
6	Kuwait	104.0
7	United Arab Emirates	97.8
8	Russia	60.0
9	Libya	47.1
10	Nigeria	37.2

Source: EIA, *Countries, Proved Reserves 2012*

Picture 1. The map shows main stream oil trade routes on the world.



Source: Energy Information Administration

1.3.2. Natural Gas (Gas)

Like in crude oil, there are two kind of resources of gas. Proven and unproven. We will also focus on proven ones.

Table 2. Proven gas resources in the World

	Countries	Proved Reserves (Trillion of m³)
1	Russia	47.8
2	Iran	33.6
3	Qatar	25.2
4	Turkmenistan	17.5
5	United States	9.4
6	Saudi Arabia	8.1
7	United Arab Emirates	6.1
8	Venezuela	5.5
9	Nigeria	5.1
10	Algeria	4.5

Source: CIA: The World Factbook

Gas is not only transported via pipelines but also via ships. Gas is converted to liquid form to be transported to countries which has no pipeline routes. This is called LNG. In contrast, to oil trade line, gas pipeline is very expensive to build. Crude oil can be taken only from specific countries like Saudi Arabia, Venezuela or Iran. However natural gas is found in much wider area on the world. Thus, many countries have opportunity to buy gas from different countries and resources or routes.



CHAPTER II

2.1. RUSSIAN MAIN STREAM ENERGY SOURCES AND ROUTES

Russian Federation has attached importance to its natural resources attentively by the beginning of 2000's. Actually, after the Putin's winning election, Russian foreign policy is based on richness of natural resources. He believed that there is a direct relationship between richness of country and natural resources.¹⁶ That policy now can realize itself in Russian economy. Oil and gas exportation of Russia fills more than 50% income of federation budget and more than %70 foriegn exchange of Russia.¹⁷

Russia is the biggest oil producer in the World.¹⁸ That's why when petrol prices increases dramatically, it affects Russian economy positively and that cycle gives to the Russia (or any other oil exporter country) negotiation power in terms of foreign policy issues.

2.1.1. Crude Oil

Table 3. Russia's oil production by region, 2014

Region	Thousand bbl/d
Western Siberia	6,442
Urals – Volga	2,312
Krasnoyarsk	368
Sakhalin	283
Komi Republic	259
Arkhangelsk	249
Irkutsk	201
Yakutiya	133
North Caucasus	64
Kaliningrad	26
Total	10,317

Source: Eastern Bloc Energy, EIA

¹⁶ Putin, Vladimir.1999. "Mineral and Raw Materials Resources and the Development Strategy for the Russian Economy". Page:144

¹⁷ Primakov, Yevgeni.2010. "Rusyasız Dünya". Page: 126

¹⁸ [http://www.iea.org/publications/freepublications/\(07/01/2015\)](http://www.iea.org/publications/freepublications/(07/01/2015))

As we see in the chart, Western Siberia is the main oil producing area of Russia. Its production potential is still important and it looks like it will be important too. The largest oil fields in this area are North Priobskoye, Samotlor, Mamontovskoye and Salymskoye.

Urals – Volga was the biggest producing area in USSR time in 1970's. However, Western Siberia took its place. The biggest field in Urals is Romashkinskoye. It was discovered in 1948.

Nowadays, East Siberia is one of the biggest producing area in Russia. Vankor field in Krasnoyarsk has changed dramatically in terms of oil production in Russia. It was opened in 2009. Yamal Peninsula and Arctic Circle in Russia are also important producing area in Russia.

Crude oil production is started up yet for its area. In North Caucuses has small fields. Yuri Kochargin field was discovered in 2010. Sarmatskoye, Rakushechnoye are also oil fields in North Caucasus.

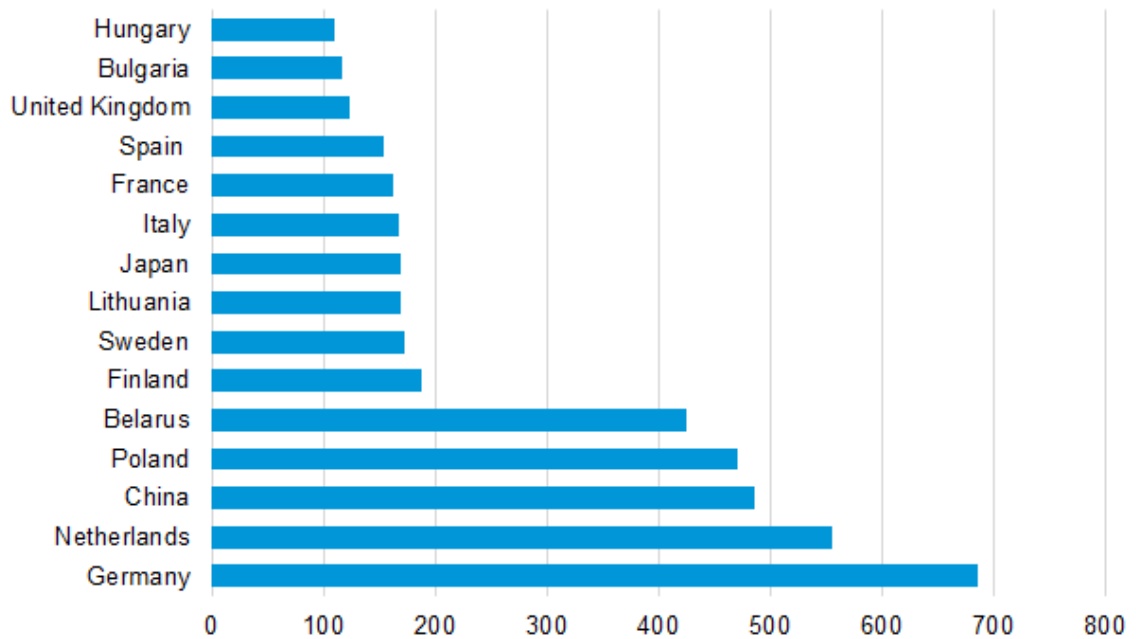
Sakhalin island is situated in eastern coast of Russia. It includes huge oil and gas resources. The island is divided by government to produce oil and gas more efficiently, Sakhalin I, II and III. Arkutun, Odoptu and Chaivo are oil fields which are in Sakhalin I. Piltun and Lunskeye fields are in Sakhalin II, Kirinskoye and Veninskoye are in Sakhalin III.

In 2014, approximately 7,5 billion bbl/d of total liquid fuels were exported by Russia. Most of exportation were made to European countries.

Figure 1. This chart shows 2012 statistics.

Russia's crude oil and condensate main export destinations, 2012

thousand barrels per day



Source: Global Trade Atlas, U.S. Energy Information Administration

China is one of the biggest Russia's oil demander in the World. And this relationship seems it will grow according to new Russia – China Gas deals. This topic will be mentioned in the next chapters.

Table 4. Russia's Oil Pipelines

Current Pipeline	Route	Length (km)	Capacity (million bbl/d)
Druzhba	Northern and Sothern Route	4000	2
Baltic Pipeline System 1	Timan to Primorsk Terminal	1100	1.5
Baltic Pipeline System 2	Unecha to Ust-Luga Terminal	1000	1
North-West Pipeline System	Podolsk to Ventspils	800	0.3
Caspian Pipeline Consortium	Kazakhstan to Port of Novorossiysk	1500	0.7

Baku – Novorossiysk Pipeline	Azerbaijan to Port of Novorossiysk	1300	0.1
Eastern Siberia – Pacific Ocean Pipeline (ESPO)	From Skovordino to Daqing (China)	430	0.6
Purpe – Samotlor Pipeline	Yabalnets to (ESPO)	420	0.5

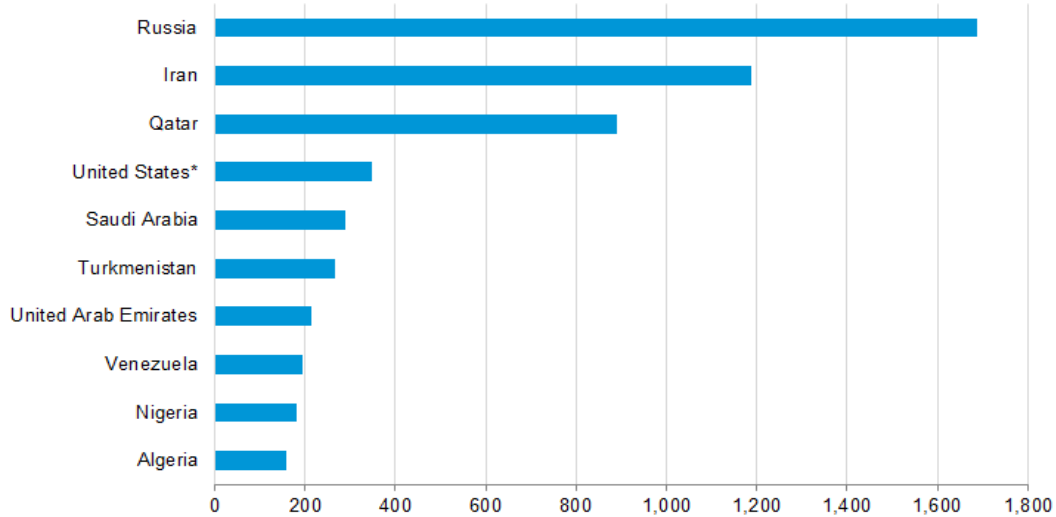
Source: Source: Transneft, IHS, PFC Energy, Petroleum Economist

2.1.2. Natural Gas

Russia has the biggest gas resources in the World. In addition, it has a quarter of all proven reserves in all around the World. Most of them are located in Siberia (40%).

Figure 2. This chart shows natural gas reserves, by countries

Largest proven natural gas reserves holders
trillion cubic feet



Note: The United States reserves are wet gas reserves as of December 2011

Source: United States: U.S. Energy Information Administration; Other Countries: Oil and Gas Journal 2013

Russia exports its gas generally to Western Europe and Turkey. Russia uses pipelines when it exports gas. There are 10 major pipelines in service in Russia, Eight of them make gas transfer to other countries. Russian gas is carried to Eastern

and Western markets in Europe, by The Yamal – Europe I, Northern Lights, Soyuz, Bratsvo and North Stream pipelines. Blue Stream, North Caucasus and Mozdok-Gazi-Magomed connect Russia's production areas to consumers in Turkey and the Former Soviet Union (FSU) republics in the east.¹⁹

Table 5. Notable Current and Proposed Natural Gas Pipelines²⁰

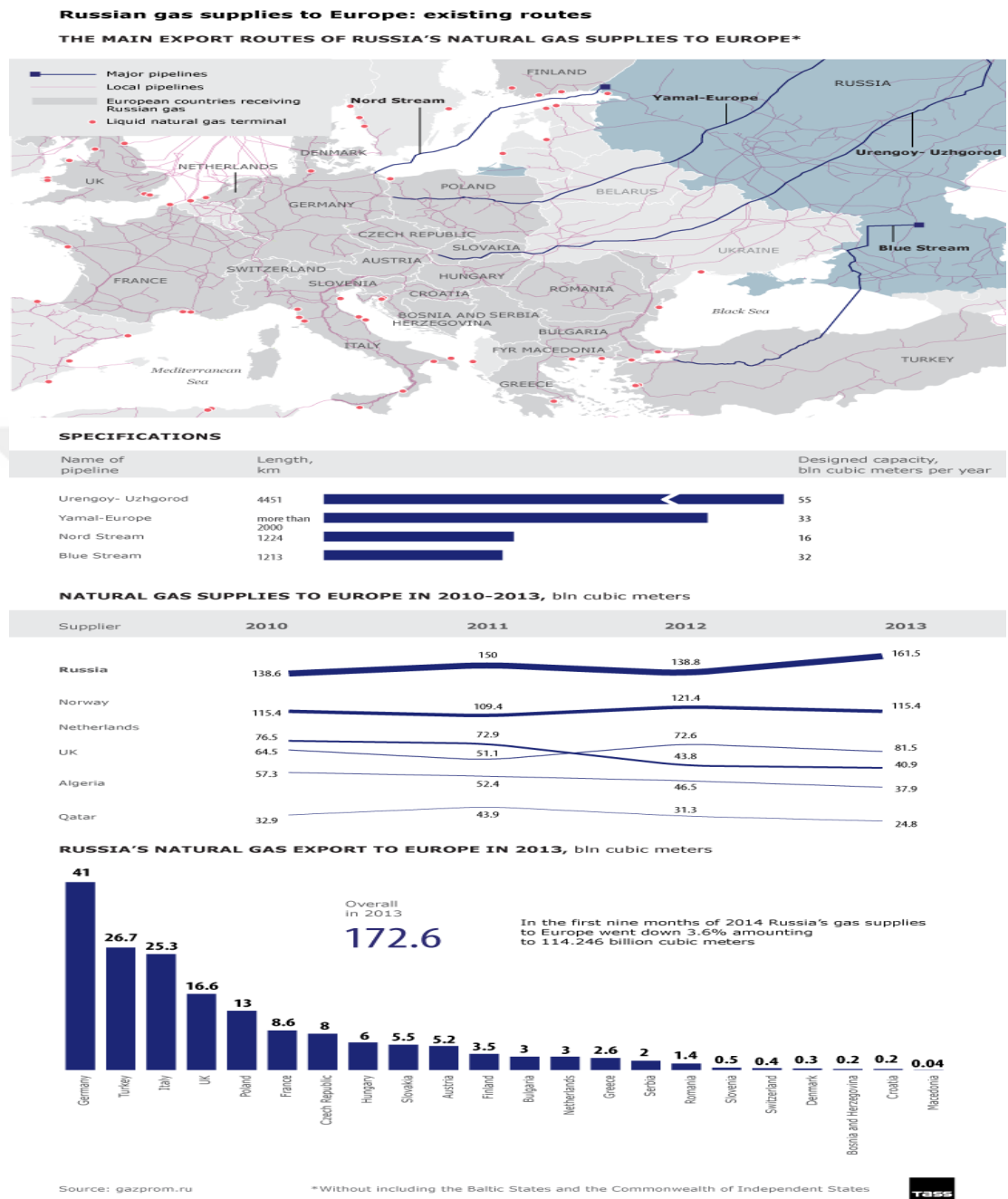
Current Pipeline	Route	Length (km)	Capacity (thousand cubic meters per year)
Yamal – Europe I	Belarus to Germany	2200	33
Blue Stream	Russia to Samsun	1200	32
North Caucasus	Russia to Georgia and Armenia	274	12
Yamburg – Orenburg – Uerngoy - Dolina	Russia to Western Europe via Ukraine	4400	55
Gazi – Magomed - Mozdok	Russia to Azerbaijan	680	13
North Stream	Russia to Western Europe via Baltic Sea	1200	16
South Stream (Turkish Stream)	From Russia to Balkans via Black Sea	This line is cancelled when Russian President Putin visited Turkish counterpart Recep Tayyip Erdogan in Turkey. The new Stream project details haven't covered up yet.	

Russia's Gross Domestic Product (GDP) is approximately 1.5 trillion \$. According to Department of Finance of Russia, 35% of Russia's annual income consists of oil and petrol income.²¹

¹⁹ <http://www.iea.org/publications/freepublications> (15/01/2015)

²⁰ Ibid.

Picture 2. Russian Natural Gas Routes to Europe



Source: <http://itar-tass.com/en/infographics/7269> (28/02/2015)

²¹ <http://www.aljazeera.com.tr/haber/petrol-fiyatlari-rusyayi-vurdu> (16/01/2015)

2.2. RUSIAN MAIN ENERGY COMPANIES AND THEIR RELATIONSHIP WITH RUSSIAN ECONOMY

Russia's gas and oil production are generally dominated by domestic firms such as Gazprom, Rosneft, Lukoil...etc. Russia's oil and gas sector is controlled by the state despite the collapse of the Soviet system. It means that there is a big correlation between that firms' energy policy and Russia's foreign policy. It also affects the Russian economic system.

At the late of 1990's, many international companies tried to enter the sector. In 2003, BP made an agreement with TNK company in Russia. They formed TNK-BP company together. It was the biggest oil producer company in Russia. However, in 2012 they split-up and BP sold its shares to the state run Rosneft company. After that, Rosneft has become the biggest oil producer in the Russia.

Lukoil is the second biggest oil company in Russia. In 2004, Lukoil signed a strategic agreement with ConocoPhillips. In 2010, ConocoPhillips agreed to sell its 20% stake back to Lukoil.

Rosneft, Lukoil and TNK are the biggest oil companies in Russia. According to EIA Rosneft exported 2448 barrel per day, Lukoil exported 1670 barrel per day and TNK exported 1493 barrel per day in 2012.²² Russia earned approximately 400 billion \$ from oil in 2012. These companies made 40% of that income individually.

Gazprom is playing important role in Russian economy and politics. Its importance came from disintegration of Ministry of Gas Industry of Russia.²³ Gazprom is a state-controlled company in Russia now. Russian Government has more than 50% of its shares. Gazprom produces almost all Russian gas, which is approximately 95% of all gas production. Additionally, 25 % of gas consumption in Europe is produced by Russia²⁴ and it controls about 25% of all world's proven reserves.

²² <http://www.eia.gov/countries/cab.cfm?fips=rs> (19/01/2015)

²³ Tkachenko, Stanislav L., "Actors in Russia's Energy Policy towards the EU", der. Pami Aalto, The EU-Russian Energy Dialogue: Europe's Future Energy Security, Ashgate Publishing Co., Hampshire, 2008 page=184

²⁴ "Energy Dialogue EU-Russia. The Tenth Progress Report." European Commission. November 2009. p. 4-6.

Since 1991, Gazprom has become gas monopoly in Russia's gas pipelines. However, its impact within Russia is even more significant. It is the single largest contributor to the Russian government's budget, providing about 25% of tax income. It also controls banks, industrial holdings, farms, and media outlets.²⁵

Gazprom has always been close to State, especially to Putin Governments. Gazprom's CEO Alexey Miller and 8 members of management committee have close relationships with Peterburg Economists²⁶ and President Putin. Gazprom is called state within the state in the Russia.

In addition, it has become significant part of the country's interior and exterior policies via deep relationships under rule of Miller.²⁷

Until the 2003, the major oil companies were controlled by the powerful businessmen or oligarchs in Russia. This situation changed when Yukos' head Mikhail Khodorkovsky was prisoned on tax charges. However, many Western policy makers and philosophers believed that the real reason behind the arrest was Khodorkovsky's independent policies from Kremlin. Then, Yukos went to bankrupt because of Government's charges. In 2004, Rosneft bought its assets which is state owned oil company. Now, Rosneft is the biggest oil producer in the Russia.

2.3. ENERGY'S ROLE AND WEIGHTNESS IN THE RUSSIAN FOREIGN POLICY

95% of energy resources in the world are controlled by the governments.²⁸ Socialisation of energy resources and using as an foreign policy instrument make countries primary actors in international energy market. In this context, countries

²⁵ Woehrel, Steven. "Russian Energy Policy Toward Neighboring Countries". *Current Politics and Economics of Europe* ISSN: 1057-2309 Volume 23, p:406

²⁶ Peterburg Economists: This group is a powerful pressure group in Russia's politics. It influences countries' export and energy policies.

²⁷ Stern, Jonathan P., *The Future of Russian Gas and Gazprom*, Oxford University Press, New York, 2005. p:172

²⁸ <http://www.isn.ethz.ch/Digital-Library/Publications/Detail/?id=56272&lng=en> Cornell, Phillip E. (der.), *Energy Security and Security Policy: NATO and the Role of International Security Actors in Achieving Energy Security*, The NATO School Research Department

must compromise with each other for countries' interests and create mutual relationship. In addition, this mutual relationship should be balanced naturally.

Energy is a strategic factor in World politics and is the major factor for national power. That's why, country's local energy policy cannot be determined as independent from the country's foreign policy. After the collapse of the Soviet Union (USSR), Russian foreign policy has passed many levels. In the first phase, Boris Yeltsin and his government, the first President of Russian Federation, rejected all Soviet policies in the Caucasus and Central Asia. They were indifferent to all social, economic and political developments of that area. However, Russian policy makers understood that passive policies damaged to Russian interests and they started to use similar policies as Soviet era's, which means policies controlling the Russian borders from Black Sea region to China. Russia has started to control over all that are with in CIS²⁹, This is called "Neighborhood Policy" of Russia. But two large Caucasian countries Georgia and Azerbaijan resisted that policy and refused to be Russia's satellite state. This situation caused to the emergence of two groups in the Caucasus. Georgia and Azerbaijan took a stand against Russia, while Kazakhstan, Armenia and Turkmenistan, with the influence of the USSR during the period of reconstruction, demonstrated positive attitude toward the Russia.

Since the mid 1990's, knowledge about the oil and gas reserves in Caucasus has changed. At the beginning of the 1990's specialists had believed that oil and gas reserves in Caucasus situated in southern part of the region. However, studies in recent years shows that oil reserves are also situated in northern part of the region. This new geological situation has changed its geopolitical situation in the Caucasus. The advantage of Russian transport system in northern part gives geopolitical power to Russia from oil reserves in Caucasus.³⁰

After the collapse of the Soviet Union, bilateral relations between Russia and Turkey gained a chance to improve. Although economical and social relations are warm because of tourism and business, both of the countries have still tension points.

²⁹ CIS (Commonwealth of Independent States, also called the Russian Commonwealth) : It is a regional organisation which members was old Soviet Republics. It is formed after the break-up the USSR. Armenia, Azerbaijan, Belarus, Kazakhstan, Kirgystan, Moldova, Russia, Tajikistan and Uzbekistan are the members.

³⁰ Journal of Security Strategies (Güvenlik Stratejileri Dergisi), issue: 10 / 2009, pages: 59-81

For instance, Turkey wants to improve relations between Central Asian and Turkic countries and this policy of Turkey disturbs the Russia because of Russia's "Neighborhood Policy".³¹

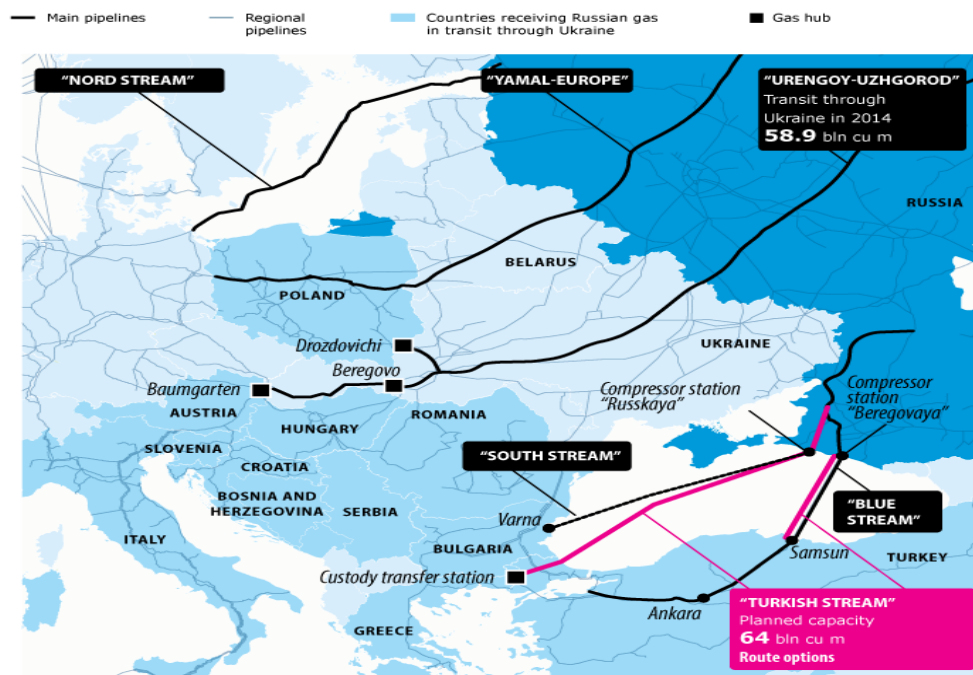
However, Turkey and Russia made important gas-deal agreement. Via that agreement, Russia abandoned its South Stream Project. South stream Project is turned to Turkish Stream now. This agreement was signed in Turkey at March 17, 2015.³²

Picture 3. The picture shows Russia's gas line in 2018.

Gas pipelines to Europe by 2018

«Gazprom» intends to completely abandon gas supplies to Europe through Ukraine after 2018 with the help of pipeline to Turkey

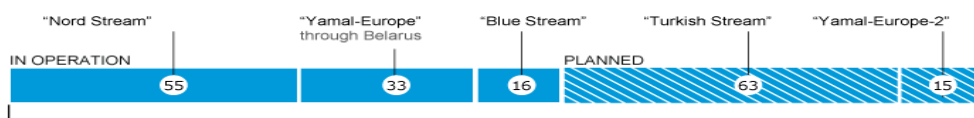
«Gazprom» is going to build a pipeline through Turkey to the border with Greece, then the EU should construct the pipes to Europe by itself



RUSSIAN GAS SUPPLIES TO EUROPE

bln cu m

GAS PIPELINES CAPACITIES



Source: <http://tass.ru/en/infographics/7275> (ITAR - TASS)

³¹ Yinanç, Refet & Tasdemir, Hakan, Uluslararası Güvenlik Sorunları ve Türkiye, Seçkin Yayınları, Ankara, 2002, page:197.

³² <http://tr.sputniknews.com/turkiye/20150317/1014479856.html> (16/04/2015)

2.3.1. Russia – China Gas Deal

An agreement was signed between Russia's Gazprom company and China's CNPC. According to the agreement, Russia's natural gas is to be exported via West and East pipelines. The pipeline called "Altay" starts from Siberia and passing from the region which is in Russia- China line between Kazakhstan and Mongolia. The other line which is to be extended from East Siberia to China is planned for future as a second stage. It is estimated nearly 40 billion m³ gas delivery in each route. The cost of the Project is calculated nearly 10 billion US Dollars. According to the agreement, Russia is going to export to China 40 billion m³ natural gas after five years. With this treatment, Russia will not only get into the market of China but also it will get into the markets of South and South- East countries. According to the Project, after 2 pipelines are completed, Russia's annual gain is calculated as 12 billion US Dollars, taking into consideration that annual 80 billion natural gas that is transferred and the price of 100m³ gas is 150 US Dollars. China's natural gas reserves are too limited to take into account. China used 50 billion m³ natural gas in 2005, and the speed of the increase is %20,6. According to the calculations, China's annual natural gas demand will be 20 billion m³ in 2020.³³

Another pipeline Project between Russia and China is "East Siberia- The Pacific". China needs a great deal of petroleum in order to sustain its own industry which turns into "the factory of the World". China's usage of petroleum has increased 25 times over the last 40 years. According to the estimations, China's annual petroleum need will be 710 millions tonnes in 2025. China consumed petroleum 300 millions tonnes in 2005. This amount increases %2,1 each year. On the other hand, China's own petroleum production is only 170 millions tonnes. China gets 30 millions of the production of petroleum from the "East Siberia – The Pacific" pipeline from which a total amount of 80 millions of tonnes petroleum pumped by. "Rosfnet" company exports petroleum to China by rail for the time being. The amount of petroleum that supplied from Russia to China by rail will be 15 millions tonnes.

³³ https://ekonomi.isbank.com.tr/UserFiles/pdf/ar_06_2014.pdf (Demirtaş, Özgür, "Rusya ve Çin Arasında İmzalanan Doğalgaz Anlaşması", Bilgi Notu, Sayfa: 2)

This energy cooperation with China means being not only dependent on European market from the viewpoint of Russia. As it is known by all, EU tries to decrease its energy dependency nearly to 30% in terms of energy safety. Thus, Russia reacts to the probable decrease in demand of Europe with getting into markets of China and South Asia. Although, “mutual dependency” policy has often been expressed, Russia shows that it has found the alternatives of Europe.

On the other hand, from the viewpoint of China, this agreement secures China's own energy. One of the cheapest things in China is workforce. 1,5 billions of population is constantly increasing. Per capita income is only 1500 dollars. There is an increasing migration from rural to urban and unemployment is getting worse. 20 million of people are added to the workable population each year. Energy problem poses a great danger for China's economy. Therefore, some analysts liken China's economy to a bicycle. As the bicycle should be always on the move, China's economy should not stop as well. If it stops due to energy problems, then the whole economy will fall quickly as hard as possible for the China's economy is a heavy bicycle. For this reason, some analysts doubt that China will be the giant of 21st century. If there is not any failure in its development, China by surpassing USA, may become a super power who determines the balances of the World. Otherwise, it has the potential to drift into a state of chaos.

“The Sleeping Giant” term was generally used for China. China has spent all its energy for economic development since 1949. Now, “The Sleeping Giant” has awoken. We can say that China's foreign policy is directed through two directions: The South – East and The North – West. The first one means to develop relations with southeast Asian countries. China has territorial problems with Japan and political problems with Taiwan. The both countries are under protection by the USA. China is trying to increase economic integration with US-led western market despite objecting to unipolar US-led political system.

The second direction The North – West means to develop relations with Russia under the Shanghai Cooperation Organization (SCO). Russia and China are both against unipolar political system and defend of multipolar system. That's why, their common policies are important for the world policy.

Putin describes Russia – China relations as a very important for the world. That's why, relations, after the inauguration of Putin in Russia, have gained momentum. Factors like NATO's expansion of the east, colourful revolutions in ex-Soviet area and the USA's activity in the Central Asia disturbs the Russia. Russia's convergence with China means that Russia has important policy diversification.

There is no military structure between Russia and China. However, they have close relationship between them in the field of military and technology. So, Russia gain approximately 2-3 billion US dollars from that relationship annually. China's air, land and naval forces are equipped with Russian-made weapons and tools.

Developments in Russia-China relations can be seen as a result of the USA's post-Cold War unipolar system. Russia and China are searching common ground in international politics. They always try to establish fiduciary agreements. They are calling their relationship level as “strategic partnership”. That's why we can interpret easily that their relationship level may be more than friendship. So, 150 year-old border problem between Russia and China was solved by Putin's leadership.

Russia's common border with China is about 4300 kilometers in length.³⁴ Border between Russia and China were drawn in 1860 and the discussions have begun since that time. China often voiced his objections. In 1964, USSR and China met in Moscow to solve Amur river problem and the border was reorganized by this way. However, China was still insisting to get some islands on Amur river. Thus, China was disturbed for that situation.

Russia and China are aware that they cannot act together because of border dispute between them. Both countries took action to solve problems. We need to emphasize that Russia and Putin took the initiative. Vladimir Putin visited to Beijing on 14 October 2004 to discuss that subject. Finally, the ongoing problems between the two countries since 1860 were dissolved. According to Russian laws, territorial change agreements need referendum. However Putin, chose the bilateral meetings. Putin doesn't show the same flexibility for Kuril Islands dispute with Japan.³⁵

³⁴ http://en.wikipedia.org/wiki/China%E2%80%93Russia_border (21/04/2015)

³⁵ <http://www.sde.org.tr/tr/newsdetail/japonya-rusya-kuril-adalari-sorunu-ve-cin/2465> (21/04/2015)

After solution between Russia and China, both countries have started more cooperative policies in the region. Russia and China decided to make new military exercises.³⁶ Russian policy makers and public cannot accept the situation that collapse of USSR and lose its position in the world policy. USA's seeing himself as "Gendarmarie of the world" blatantly, provides Russia's disturbance. That's why, for Russia, China is the natural partner against the USA in the region.

Russia couldn't stop the NATO's Serbia operation in 1998. That's why, Russia responded the axis of Russia – India – China, what was voiced by Russian Prime Minister Yevgeny Primakov. According to Primakov, that axis would create an alternative way to the USA-led unipolar system. Actually, in the late of 1990's, that triple axis didn't gain much focus. However, Vladimir Putin, after taking control on Russian policy, have promulgated that policy step by step carefully. The first leg of the creation of the triple axis, which is good relations with China, has already begun. The next country is India. The first meeting between three countries was held during the UN General Assembly meetings in New York in 2002 and 2003. The next meetings were held in Kazakhstan's Alma-ata city. The foreign ministeries of Russia, India and China attended a conference at Vladivostok, Russia in 2005. Mongolia, India, Iran and Pakistan have taken the observer status in the Shangai Cooperation Organization (SCO). Russia and China solved their border problems with the help of the SCO. There is also a border dispute between China and India. India entered the SCO as an observer status so, India gained an opportunity to the normalization of China-India relations as well.

If Russia, India and China can cooperate in terms of international relations, the USA will find a new block against him. In this case, the SCO will increase its importance in the international politics as an international organization. That's why, relations between Russia and China, and its politic aspects for Russia, has vital importance for Russia's future policies in foreign relations and world political balance. Otherwise, the future super power China and India will be stronger, but Russia will be affected and restricted country in the area. Thus, relation between Russia and China is very important. It seems that, Russia and China want to make India as a member of SCO and with that way SCO will become more efficient and

³⁶ <http://www.c4defence.com/cin-ve-rusya-akdenizde-ortak-tatbikat-yapacak/> (21/04/2015)

strong in the international organizations. Turkey, an international, important player in its geography, should give a lot of attention to these developments. Turkey declares oftenly that it follows multidimensional foreign policy and choice of Eurasia is one of his path. That's why, that kind of development should be put on agenda by Turkey.

2.4. ANNEXATION OF CRIMEA BY RUSSIA AND HYDROCARBON SOURCES IN BLACK SEA REGION

The global industrial powers want to keep control of hydrocarbon reserves in the Black Sea region because, there is one of the world's important energy corridor.

The USA's Black Sea region policy shows itself in that words, whose the USA's former Ross Wilson: "The security of energy supply is important for the United States, the security of the region is a great importance in this respect. Taken together, the area around the Black Sea region is having perhaps the world's largest new oil and natural gas resources. That energy corridor gives key characteristic to the geography and the transports energy to international markets from the Black Sea region".³⁷

Oil and natural gas exploration in the Black Sea offers quite promising opportunities for the discovery of new large reserves. The consortium which formed by Roal Dutch, Shelland ExxonMobil discovered natural gas coasts of Crimea. Its capacity is estimated that there are 250 billion m³ gas reserves.

The American multinational oil and gas company which is called ExxonMobil discovered oil field in offshore Romania. Many experts believe that this discovery makes Romania as an oil exporter country in the future.³⁸ ExxonMobil also took licensing venture from Ukraine to seek oil and gas in Crimea.

³⁷ www.esiweb.org/pdf/esi_turkey_tpq_id_58_pdf (Opening speech of Annual Security Conference "The USA policy in the Black Sea region")

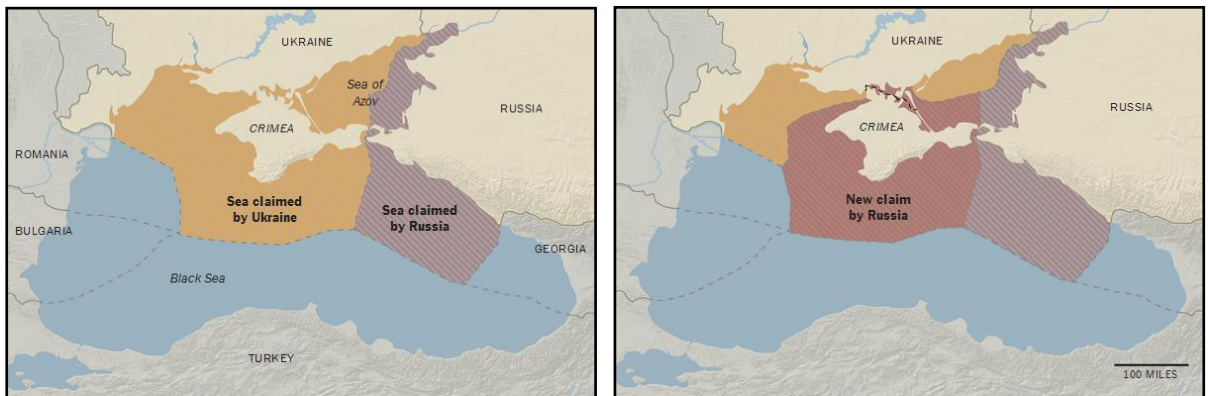
³⁸ Süleyman Bulut, "Enerji Penceresinden Ukrayna ve Kırım Krizine Bir Bakış", 2023 Dergisi, Mart 2014.

The Black Sea region take a role in the international literature by the means of having a favorable conditions in terms of natural gas hydrate reserves. It means that the Black Sea region has great hydrogen energy potential in the future.

The biggest metan hydrate reserves on the earth stays in the Black Sea region. According to seismic Works by Russian scientists, there are five promising areas to hydrate formation in the Black Sea region. According to experts hydrate reserves in eastern and southern Crimea are approximately 50 trillion m³.³⁹

On the other hand, when the Criema belonged to Ukraine, Ukraine had huge amount of oil and gas reserves in the black sea. However the situation has completely changed by Russia because of its invasion to Crimea. The Russia added 93 thousand km² area into its territory which is rich in terms of oil and gas reserves. These reserves' value calculated as trillion U.S. Dollars. While, the other Ukranian area in the Black Sea region, there are no reserves.⁴⁰ The Russia has gained strategic advantage after annexation of Crimea.

Picture 4. Black Sea Region After Annexation of Crimea



Source : The New York Times (18/05/2014)

³⁹http://www.fes.bg/files/custom/calendar/2012/Bulgarien_in_Europa/21_10_Schwarzmeerkonferenz/Michailo_Gonchar_UNCONVENTIONAL_HYDROCARBONS_OF_THE_BLACK_SEA.pdf,

Unconventional Hydrocarbons of the Black Sea: Investments into Energy Independence of Europe, Mykhailo Gonchar, Director for Energy Programs, Center NOMOS, Ukraine.

⁴⁰<http://www.nytimes.com/2014/05/18/world/europe/in-taking-crimea-putin-gains-a-sea-of-fuel-reserves.html? r=0> The New York Times, William J. Broad, "In Taking Crimea, Putin Gains a Sea of Fuel Reserves" başlıklı makale, 17 Mayıs 2014.

CHAPTER III

3.1. TURKEY'S ENERGY NEEDS AND ITS DEPENDENCE ON RUSSIAN ENERGY

Over the past 10 years, the trade between the two countries has increased in terms of large amount of investment and tourism. Since 2008, Russia, has been an important trading partner after the EU for Turkey. Although the total trade reaching \$ 30 billion in 2011, 80 % of the rate is energy import from Russia. Turkish investment in Russia is more than \$ 7 billion. Turkish contractors have completed projects in this country worth 33.8 billion U.S. Dollars.

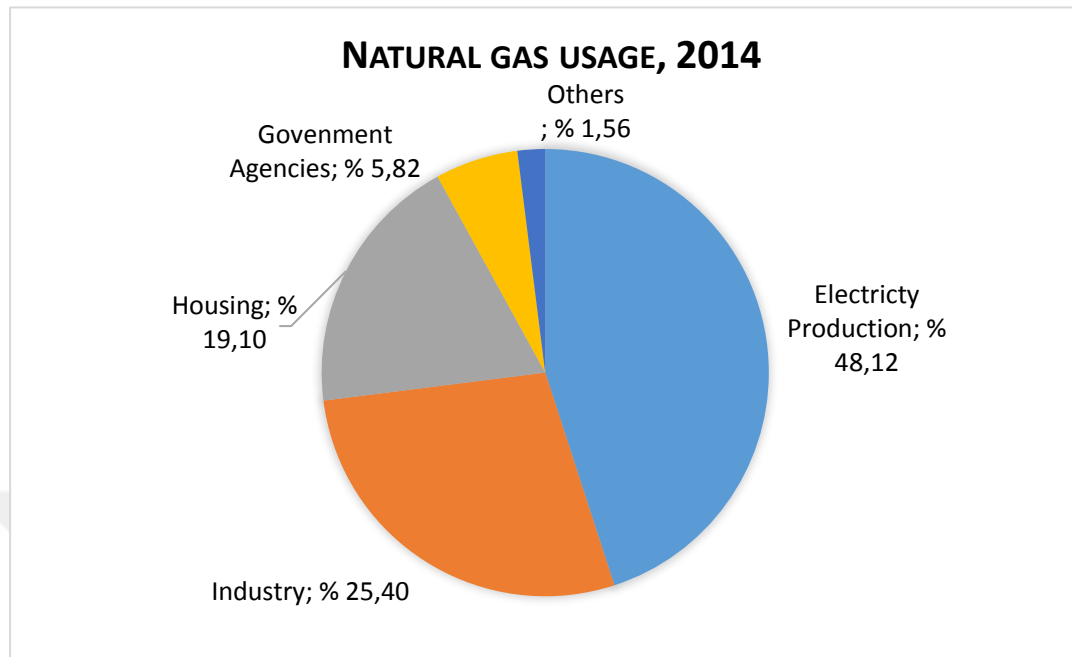
Turkey's energy strategy is to guarantee the purchase of natural gas from Russia, and also to establish a vital bridge to the West. Turkey's that policy with the Russia, makes a mutually economic dependence, especially for Turkey. Both Turkey and Russia describe the energy relations as a mutual benefit. Any project or cooperation should serve the interests of both countries. Gas is only one dimension of comprehensive relations between Turkey and Russia. In 2014, Turkey consumed 49 billion cubic-meter of natural gas. 56 % of the consumption of Turkey is provided by Russia⁴¹.

If we look at the use of the natural gas in terms of areas, we can see that 45 % in electricity production, 28% in the industrial sector and 6% in the service sector and other sectors. That distribution suggests us if a possible disruption in the flow of natural gas for Turkey, most affected areas will be electricity production⁴².

⁴¹ Türkiye Petrolleri Ham Petrol ve Doğalgaz Sektör Raporu, May 2015, page: 38

⁴² According to EPDK datas. EPDK: Energy Market Regulatory Authority of Turkey.

Table 6. Natural Gas Usage In Turkey



Turkey and Russia has a multi dimensional energy relationship that reflects on different fields, starting to accelerate in the second half of 1980's.

It started on the occasion of natural gas transfer from Russia to Turkey but it has turned into a different dimension with the Moscow's building of the first nuclear plant in Turkey.

As a foreign dependant country, in terms of natural gas, Turkey has a policy to have diverse energy supplies from different countries. On the contrary, it should be questioned to giving the the right to build the nuclear plant to whom dependant to %60, which has adverse affects on the state's interest as well. That's why Turkey need to end that dependency from Russia for its interests.

3.2. TURKEY – RUSSIA RELATIONS ACCORDING TO ENERGY PERSPECTIVE

According to TUIK's data, in 2013, Turkey's energy import occupies 22 % of all import. That high level of energy import is one of the main cause of Turkey's high current account deficit. Turkey is the country that both developing and population booming. That's why this situation cannot sustainable forever for Turkey. Turkey has high foreign-dependant country in terms of petroleum and natural gas. Turkey, approximately 60 % of its annual consumption of gas is imported from Russia. In 2013, the volume of trade between two countries reached 30 billion US \$⁴³. Turkey's first nuclear plant's construction, work and its fuel supply are also dependant to Russia. This is another factor that increase Turkey's dependancy to Russia. According to EPDK⁴⁴ reports, Turkey's crude oil import share from İran and Russia has decreased but Iraq's share increased in recent years⁴⁵.

Turkey approximately uses half of its annual natural gas consumption in electricity production. Turkey imports its 99 % of its annual need of natural gas. It shows that Turkish foreign-dependant situation will continue in near future. In 2013, Turkey made \$55 billion value of energy. That import takes place 22 % in all import. That bill also causes 56 % of all budget deficit in Turkey.

Turkey sometimes feels the anxiety because of energy supply problems and fluctuation of dollar rates in the international markets. Turkey uses energy in every field of the life like any other countries. Turkey, because of the take-or-pay principle agreements, pays higher natural gas prices according to World average prices. That situation affects rivalry rules of industry and also affects household's heating costs.

In 1990, Turkey used 48 % of its annual energy needs with local sources. That rate fall to 33 % in 2000's, and 29,2 % in 2010. If this trend will continue like that, Turkey's foreign-dependant situation will also continue and increase. According to EPDK analysis, it is estimated that Turkey's investment value between 2010-2013

⁴³ According to experts, after the jet plane problem between Turkey an Russia, these trade trend will effect negatively.

⁴⁴ EPDK: Turkish Energy Market Regulatory Authority

⁴⁵ www.epdk.org.tr, Petrol Piyasası Sektor Raporu, 2013.

will be 225 – 280 billion US Dollar. The biggest share of investment is machinery and equipment costs. Turkey's foreign-dependant situation is getting worse if we include machinery costs. Because Turkey, imports annually 7-8 billion US dollar machinery and equipment from China. China is the biggest source in the meaning of machinery and equipment for Turkey⁴⁶.

That situation emerges some problems not only in economic relations, but also political and international relations. These problems can be seen on the Turkey's Kürecik Radar System, Syrian refugees and Patriot missile subjects with Russia and Iran, although Turkey has high dependancy in terms of energy with both countries. The high level of foreign-dependancy causes high risks at politics, diplomacy, economy and national security. Turkey could create different routes and sources in petroleum import from Russia and Iran, but couldn't create with natural gas. Turkey's political aim is become an energy hub country in the region. However after the jet plane situation with Russia, Turkey will face some obstacles for that policy like NABUCCO before.

Russia is one of the biggest energy producers in the world. Russia has the biggest natural gas reserves on earth and it makes him the biggest natural gas exporter. Russia has also the third biggest petroleum exporter. Russia is very active actor in international energy markets. Their economy policies depends on energy priority and uses it as a main and strategic weapon in international relations. In addition, Russia uses its historical power to manage regional countries, so its power become increased. Russia is expanding its export routes like China. Russia and China has huge economic co-operation agreements.

Although Russia was expelled from G8⁴⁷ because of annexation of Crimea and serious problems with Ukraine, Russia is the biggest energy supplier to these countries and the biggest energy producer. Energy policies has become important in Russia since Vladimir Putin's election. According to Putin's policy, petroleum and coal can be regulated by liberal rules of economy and private sector, however natural gas and electricity must be regulated by state. Gazprom is very important for

⁴⁶ Oğuz Turkyılmaz, "Bağımlılığın Oteki Yuzu", *Cumhuriyet Enerji*, 4 Aralık 2012, s: 4.

⁴⁷ G8: Group of Eight: The first eight countries in the world who has the highest GDP.

Russia's economy and diplomacy. Gazprom's board of directors consists of Putin's friends or businessmen who very close to Putin.

Russia and China called themselves as a "strategic partner". Their policies have always been in harmony in international area. They work closely in Shanghai Cooperation Organization (SCO), BRICS (Brazil, Russia, India, China, South Africa) and United Nations (UN). Their policies generally coherent in the Middle East. Their armies make exercises together. If we think about China's increasing energy demand, Russia and Gazprom's importance can be understood clearly. Russia is also the biggest natural gas supplier of the European Union, especially Germany. Russia is trying improve its power on Commonwealth of Independent States (CIS) in regard to transportation of energy. Russia builds infrastructure with high scale investments in those countries to bound himself.

The EU's increasing energy needs and dependancy to Russia for energy are vital important for Russia. Because of that dependancy, the EU cannot produce one solid policy to Russia together. EU imports 64 % of its annual natural gas consumption in 2013. It is expected that this ratio will be 80 % in 2030. In 2013, Russia supplies 38 % of the EU's annual need. Thus, in 2030 this ratio will be increased according to experts⁴⁸.

Russia previously had problems with Ukraine because of natural gas. However, after Russia annexed Crimea from Ukraine, there was a crisis among Russia, USA and European Union. That crisis has not only politic, diplomatic and military dimensions, but also economic and energy. Even though the USA and the EU supported Ukraine in that crisis, they couldn't make deterrence on Russia as they expected before because of their energy dependancy from Russia, especially Germany. Germany is developing new relationships with Iran and China also.

According to many academicians, foreign-policy cannot be thought without energy needs. Therefore, Turkey isn't very powerful in international diplomacy because of its dependancy from foreign sources (for petroleum 93 % and for natural gas 98 %). Turkey will pay 71 billion US Dollar to Russia in 15 years to build radioactive plant. Current accout deficit is one of the biggest problems in Turkish

⁴⁸ Samir Kerimli, Türkiye'nin Enerji Merkezi Olması Yolunda TANAP Projesinin Rolü, Hazar Strateji Enstitüsü Yayınları, İstanbul, 2014, s: 9 – 10.

economy. That problem exists because of high level of energy import. For example, if the petroleum prices increases 2 US Dollars, Turkish current account deficit increases 1 billion US Dollar. That's why Turkey has concern about energy prices in global market.

Russia didn't want to build Baku – Ceyhan pipeline because of its interests. Because of that failure, Russia always tries to new routes of pipelines to gain a power energy transportation. According to Russia, Montreux Agreement is very important. Russia appreciated Turkish policies during Georgia crisis. However, after annexation of Crimea and situations in eastern Ukraine and shooting Russian Jet Plane by Turkish Jets, Turkey and Russia have become different parts in the region. Russia also have fear that Turkey's rights on Montreux Agreement.

Turkey and Russia have different policies for Syrian conflict, in Iraq, Missile Radar System and in Ukraine. These differences finally showed their peak point when Russian jet fighter was shot by Turkish jets.

Turkey's environment has 70 % of all proven reserves of petrol and natural gas. That's why, Turkey wants to be energy transit and energy hub country in the world. However, Russia is one of the biggest obstacles for Turkey's that aim. Russia's naval power is stronger than Turkey in the Black Sea region. The other source areas in Iraq, Iran and Syria cannot be solution for Turkey. Because Turkey have big or small problems with that countries. In this reality, Turkey's that aim is nearly impossible for now.

CHAPTER IV

LITERATURE REVIEW

There are several studies in the world which investigate the relationship among energy, current deficit and economic growth.

Kraft and Kraft⁴⁹ firstly studied the relation between economic growth and energy for the United States of America's economy. They used between 1947 – 1974 data of American economy. They found that there were a causality from economic growth to energy consumption.

Altunöz⁵⁰ determined that energy import takes huge part in Turkish current account deficit. In addition, Turkish current account deficit cannot be sustainable with these policies.

Demirbaş⁵¹ was able to determine that any increasing in oil prices widens the current account deficit with the error correction model.

Demir⁵² studied the relationship between energy import and current account deficit. He found that energy import is the biggest determinant of Turkish current account deficit. According to him between 2000 – 2011, energy import causes 80 % of all current account deficit in Turkey.

⁴⁹ Kraft, J. ve Kraft, A. (1978), "On the Relationship Between Energy and GNP", *Journal of Energy and Development*, 3, 401-403.

⁵⁰ Altunöz, Utku (2014), "Cari Açık Sorununun Temel Nedenleri ve Sürdürülebilirliği: Türkiye Örneği", *İstanbul Gelişim Üniversitesi Sosyal Bilimler Dergisi*, page:115-132.

⁵¹ Demirbaş, M. Türkay, H. & Türkoğlu, M. (2009), "Petrol Fiyatlarındaki Gelişmelerin Türkiye'nin Cari Açığı Üzerine Etkisinin Analizi", *Süleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, page: 289-299.

⁵² Demir, Murat (2013). "The Relationship Between Energy Import and Current Account Deficit: The Case of Turkey with VAR Analysis", *Journal of Academic Researches and Studies*, Volume:5 - Number:9 – November 2013.

Güneş⁵³ studied the relationship between current deficit in Turkey and international petrol prices. He determined that there is a positive relationship between them. Increasing the petrol prices triggers the expansion of current account deficit in Turkey.

Uysal⁵⁴, determined that energy imports affects current account deficit in Turkey. He also emphasized that there is positive relation between energy consumption and economic growth. That paper concluded to identify the relationship between current account deficit, energy consumption and economic growth by using the data set between the years 1980-2012 with reference to VAR (Vector Auto Regression).

Yanar⁵⁵ and Kerimoğlu studied between energy consumption, economic growth and current account deficit in Turkey. Their conclusion was there were an positive relation between economic growth and energy consumption. In addition, energy consumption, because of import, took huge part in current account deficit in Turkey.

Doğan⁵⁶ studied also energy consumption and current account deficit relations. However, his study also emphasized that Turkey's energy import from Russia plays huge role on current account deficit in Turkey. He used Johansen Cointegration Test in his study.

Erkılıç⁵⁷ argued in his study that energy prices has effect to current account deficit in Turkey. According to his conclusions, energy prices were one of the determinant of the current account deficit in Turkey. The current account balance is affected negatively by sudden shock rises in oil prices.

⁵³ Güneş, Köksal (2015), "The Changes of International Oil Prices Affects On Current Account Deficit – Case of Turkey (1980-2012)", Bilecik Şeyh Edebali Üniversitesi, SBE, Yüksek Lisans Tezi.

⁵⁴ Uysal, Doğan, Yılmaz, Kubilay, Taş, Taner (2015), "The Relationship Between Energy Import And Current Account Deficit : The Case Of Turkey", Muş Alparslan Üniversitesi Sosyal Bilimler Dergisi, Volume:3, No:1, Page:63-78.

⁵⁵ Yanar, R. and Kerimoğlu, G. (2011), "Energy Consumption, Economic Growth and Current Account Deficit Relations in Turkey" *Ekonomi Bilimleri Dergisi*, 3 (2), 191–201.

⁵⁶ Doğan, E. and Bayraç, N. (2014), "A Micro-Based Approach on the Problem of the Current Account Deficit in Turkey" *Eskişehir Osmangazi Üniversitesi Sosyal Bilimler Dergisi* Aralık 2014, 15(2), 97-124.

⁵⁷ Erkılıç, S. (2006). "Türkiye'de Cari Açığın Belirleyicileri", TCMB Uzmanlık Yeterlilik Tezi, Ankara.

Öz⁵⁸ studied that any increase in petroleum price or energy import or non-energy import, negatively affect current account deficit implying deficit gets larger.

Röhn⁵⁹ analyzed a large number of macroeconomic variables from oil prices and initial net foreign assets and found out that current account deficit was affected by large number of that macroeconomic variables.

Aytemiz and Şengönül⁶⁰ found in their study that developing countries which economic growth depends on energy (oil) import, an increase energy prices negatively affected current account deficit.

Murat, Hobikoğlu and Dalyancı⁶¹ stated in their article that Turkish current account deficit occurred because of foreign dependency in energy, saving gap and structural economic problems.

Schubert⁶² studied that dynamic effects of an oil price shock affects current account deficit in small open economies.

Altıntaş⁶³ studied that petroleum price shocks makes transmission mechanism role on exchange currency. That's why, inflation pressure becomes increased and consumption is affected negatively.

Anam Hassan and Zaman⁶⁴ investigated 1975-2010 period in Pakistan for increasing oil prices on trade balance with ARDL method. They determined that any oil price shocks or increasing exchange currency causes trade imbalance.

⁵⁸ Öz, Emrah (2013), "Relationship Between Energy Between Petroleum Price, Non-Energy Import and Current Account Deficit: The Case Study of Turkey", *Enerji Piyasa ve düzenleme Dergisi* 2013.

⁵⁹ Röhn, O. (2012), "Current account benchmarks for Turkey", OECD Economics Department Working Papers, No. 988, OECD Publishing <http://dx.doi.org/10.1787/5k92smtqp9vk-en>

⁶⁰ Aytemiz, T. and Şengönül, A. (2008), "Regression Tree Analysis of Effects of Energy Prices on Turkish Current Account Deficit", *İktisat İşletme ve Finans Dergisi*, Volume: 23, Pages: 94-109.

⁶¹ Murat, S. Hobikoğlu, E. Dalyancı, L. (2014). "Structure and Sustainability of Current Account Deficit in Turkish Economy", *Procedia - Social and Behavioral Sciences*, Volume: 150, page: 977 – 984.

⁶² Stefan F. Schubert (2014). "Dynamic Effects Of Oil Price Shocks And Their Impact On The Current Account." *Macroeconomic Dynamics*, 18, pp 316-337. doi:10.1017/S1365100512000405.

⁶³ Altıntaş, Halil (2013). "The Relationship Between Oil Prices, Export and Real Exchange Rate In Turkey: Bounds Testing Approach And Analysis Of Dynamic Causality", *Int. Journal of Management Economics and Business*, Vol. 9, No. 19, 2013.

⁶⁴ Anam Hassan, S. and Zaman, K. (2012). "Effect of oil prices on trade balance: New insights into the cointegration relationship from Pakistan." *Economic Modelling*, 29, 2125–2143.

Yalta⁶⁵ studied the analysis between energy consumption and economic growth.. The time series data (1950-2006) have been implemented. Co-integration test analysis was performed. Energy consumption and economic growth, employment variables have been added. As a result, energy consumption has a neutral relationship between GDP.

Hondroyiannis, Lolos and Papapetrou⁶⁶ used 1960 – 1996 data of Greece economy. They researched that relations between energy consumption and economic growth with Vector Error Correction Model (VECM). In that article, they determined that there is strong relationship between energy consumption and economic growth.

Paul and Bhattacharya⁶⁷ analyzed the link between energy consumption and economic growth in India. With data of 1950 – 1996, they determined that variables have mutually interaction.

Telatar and Terzi⁶⁸ investigated the relation between economic growth and current account deficit. They used Granger and VAR analysis. They found that there is a one-way significant causality from growth to deficit.

Erdal and Esengün⁶⁹ analyzed the relation between energy consumption and real GDP for Turkey. They took the period as 1970 – 2006. Johansen cointegration test showed that there is causality between consumption and GDP.

Uslu and Polat⁷⁰ examined the relationship between electricity consumption, employment and real income in Turkey by using annual data for period of 1923 –

⁶⁵ A. Talha Yalta (2011), "Analyzing Energy Consumption and GDP Nexus Using Maximum Entropy Bootstrap: The Case of Turkey," *Energy Economics*, 33 (3), 453-460, 2011.

⁶⁶ Hondroyiannis, G. Lolos, S. ve Papapetrou, E. (2002), "Energy Consumption and Economic Growth: Assessing The Evidence from Greece", *Energy Economics*, 24(4), 319-336. [http://dx.doi.org/10.1016/S0140-9883\(02\)00006-3](http://dx.doi.org/10.1016/S0140-9883(02)00006-3).

⁶⁷ Paul, S. ve Bhattacharya, R. N. (2004), "Causality Between Energy Consumption and Economic Growth In India: A Note on Conflicting Results", *Energy Economics*, 26(6), 977-983. <http://dx.doi.org/10.1016/j.eneco.2004.07.002>

⁶⁸ Telatar, Osman M. ve Terzi, Harun (2009), "Türkiye'de Ekonomik Büyüme ve Cari İşlemler Dengesi İlişkisi", *Atatürk Üniversitesi İİBF Dergisi*, 2(23), 119-134.

⁶⁹ Erdal, G., Erdal, H. and Esengün, K. (2008), "The Causality Between Energy Consumption and Economic Growth in Turkey", *Energy Policy*, 36(10), 3838-3842. <http://dx.doi.org/10.1016/j.enpol.2008.07.012>

⁷⁰ Uslu, Ertad E. and Polat, Ö. (2011), "Electricity Consumption, Employment and Real Income in Turkey", *Enerji, Piyasa ve Düzenleme Dergisi*, (2), 1-20.

2006 within a cointegration and causality framework. Both in the long and short-run, causality runs from employment and real income to electricity consumption.

Aktaş⁷¹ also analyzed a relation between electricity consumption and Turkey's economic growth. In his study, it was found that bidirectional causal relationship between employment and GDP in the short and long-run. In addition to, unidirectional causality running from GDP and employment to electricity consumption exists in the short and long-run.

Saidi and Hammami⁷² examined the two-way linkages between energy consumption and economic growth using data from Tunisia over the period 1974-2011. That research tested this interrelationship between variables using the Johansen cointegration technique. Their empirical results showed that there exists bidirectional causal relationship between energy consumption and economic growth in the long-run.

⁷¹ Aktaş, Cengiz (2009), "The Analysis With Error Correcton Modelling Of Relationship Between Electricity Consumption, Employment And Economic Growth In Turkey", *Dumlupınar Üniversitesi Sosyal Bilimler Dergisi*, (25), 61 – 68.

⁷² Saidi, K. and Hammami, S. (2014). "Energy Consumption and Economic Growth Nexus: Empirical Evidence from Tunisia". *American Journal of Energy Research*, 2(4), 81-89.

CHAPTER V

5.1. RUSSIAN IMPORTED GAS' ROLE IN TURKEY'S CURRENT ACCOUNT DEFICIT

Turkish economy is the 18th biggest economy in the world⁷³. According to national reports, its economy is based on exportation of machinery parts and textiles. Turkey is also importing machinery and petrol from other countries. Table 1 shows the Turkey's export/import volume.

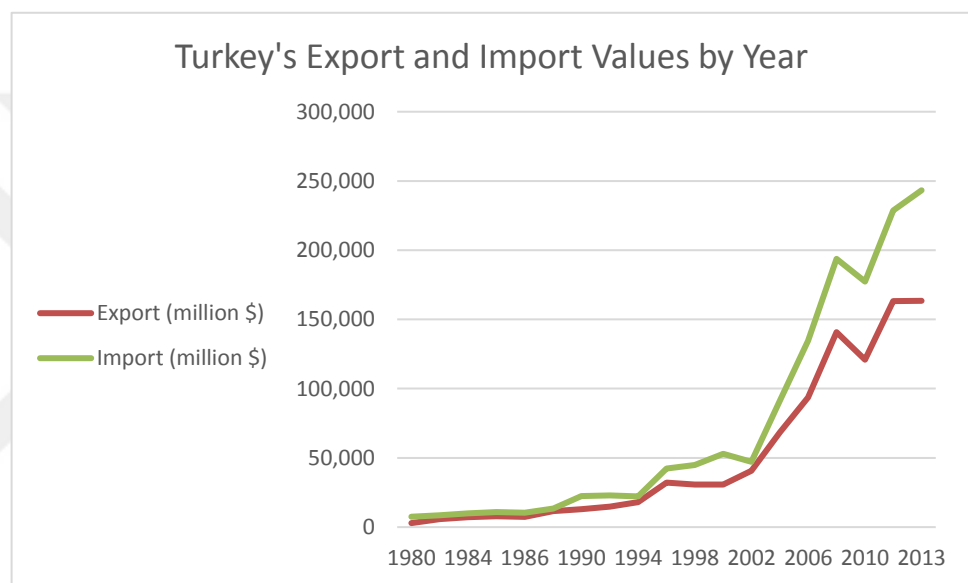
Table 7: Turkey's Export/Import Volume

Years	Export (million \$)	Import (million \$)	Exp/Imp (%)
1980	2.910	7.513	39%
1981	4.703	8.567	55%
1982	5.890	8.518	69%
1983	5.905	8.895	66%
1984	7.134	10.044	71%
1985	7.959	10.935	73%
1986	7.457	10.475	71%
1987	10.190	13.396	76%
1988	11.662	13.475	87%
1989	11.625	15.815	74%
1990	12.959	22.407	58%
1991	13.593	20.883	65%
1992	14.715	22.791	65%
1993	15.345	29.426	52%
1994	18.106	22.273	81%
1995	21.636	34.788	62%
1996	32.067	42.331	76%
1997	32.110	47.158	68%
1998	30.741	44.779	69%
1999	29.031	38.802	75%
2000	30.825	52.882	58%
2001	34.729	38.092	91%
2002	40.719	47.109	86%
2003	52.394	65.883	80%
2004	68.535	91.271	75%

⁷³ <http://www.trtturk.com/haber/turkiye-ekonomisi-dunya-18si-161133.html> (Data Accessed: 02/12/2015)

2005	78.365	111.445	70%
2006	93.613	134.671	70%
2007	115.361	162.213	71%
2008	140.800	193.821	73%
2009	109.647	134.497	82%
2010	120.902	177.315	68%
2011	143.396	232.535	62%
2012	163.221	228.552	71%
2013	163.436	243.253	67%

Source: TUIK



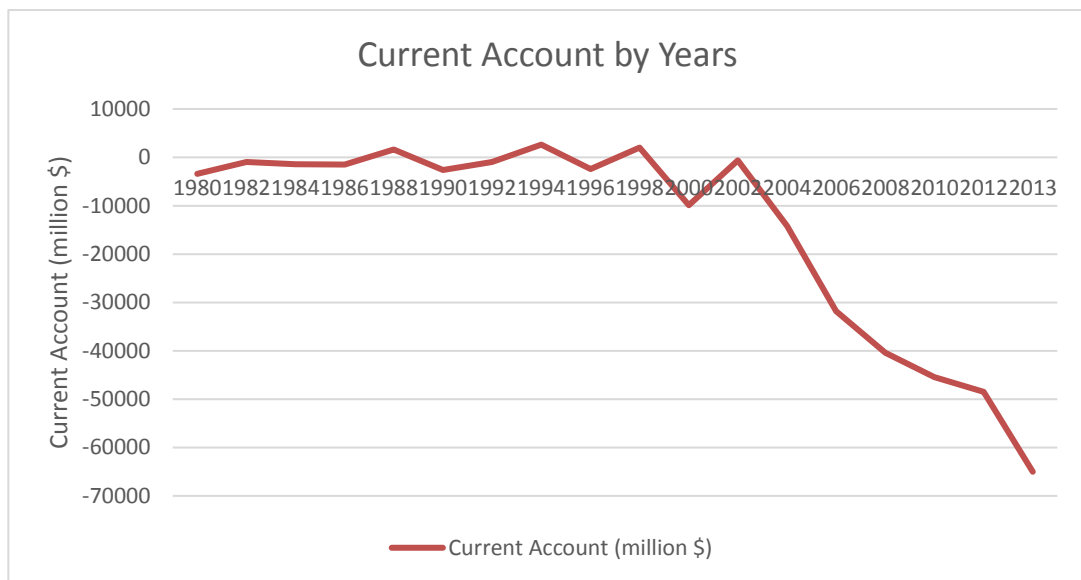
Graph 1: Turkey's Export and Import Volume

Current Account Deficit is one of the biggest problems in Turkish economy. Huge amount of deficit makes Turkish economy vulnerable to external shocks and crisis. In addition importation of Russian gas takes huge part in the Turkish importation of goods. Since 2002, Turkish current account deficit has increased. Table 2 shows that situation.

Table 8: Turkey's Current Account Deficit

Years	Current Account (million \$)	Growth Rate (Per Capita) (%)	Current Account / GDP
1980	-3408	4,3	-3,8
1981	-1936	11,9	-2
1982	-952	7,2	-1,1
1983	-1923	6,4	-2,4
1984	-1439	8,0	-1,8
1985	-1013	4,8	-1,1
1986	-1465	6,9	-1,5
1987	-806	10,8	-0,7
1988	1596	3,9	1,3
1989	938	2,3	0,7
1990	-2625	11,6	-1,3
1991	250	2,8	0,1
1992	-974	6,7	-0,5
1993	-6433	8,6	-2,7
1994	2631	-5,0	1,5
1995	-2339	7,7	-1
1996	-2437	7,9	-1
1997	-2638	8,0	-1
1998	2000	3,9	0,7
1999	-925	-4,6	-0,4
2000	-9920	12,3	-3,7
2001	3760	-6,1	1,9
2002	-626	0,6	-0,3
2003	-7554	1,6	-2,5
2004	-14198	15,5	-3,7
2005	-21449	12,1	-4,6
2006	-31836	13,3	-6,1
2007	-37781	7,7	-5,9
2008	-40438	8,1	-5,7
2009	-12168	-3,5	-2,3
2010	-45447	10,4	-6,4
2011	-75092	10,6	-9,7
2012	-48497	1,8	-6
2013	-65004	3,3	7,9

Source: TUIK and TCMB



Graph 2: Turkey’s Current Account Deficit by Years

As we see on Graph 2, since 2002, Turkey’s Current Account deficit has increased gradually.

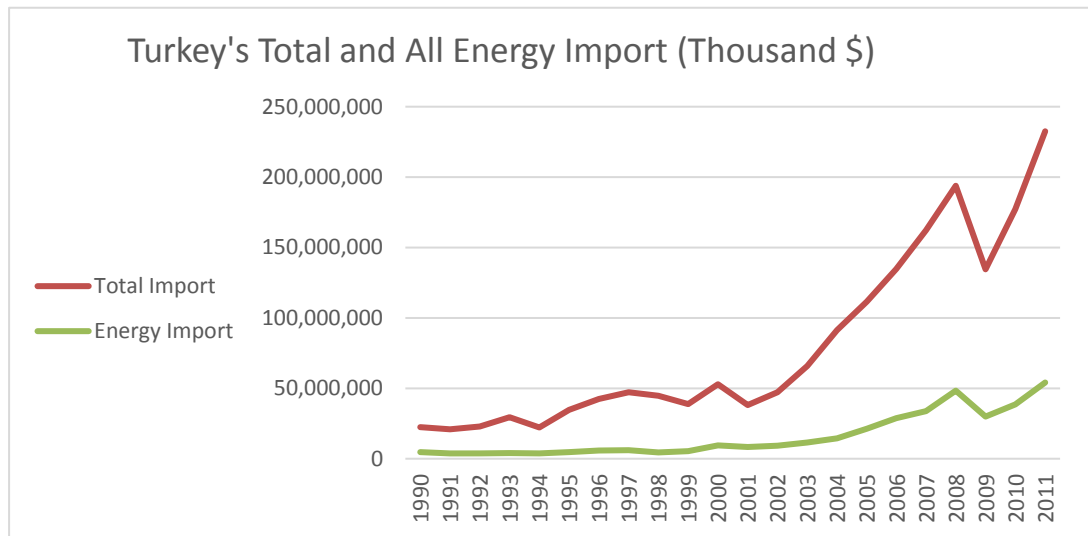
Amount of Turkey’s energy importation from Russia is very high, and it causes current account deficit. Since 2002, Turkey is in the development progress. Thus, Turkey needs energy. However, Turkey has no oil, gas or any other sources. Turkish land is lack of any energy natural sources. Actually, Turkey has high potential to renewable energy sources like wind. However, Turkey needs petroleum products and gas to heat and to generate electric energy. Table 3 shows Turkey’s amount of importation of oil, gas and petroleum from the other countries.

Table 9: Turkey’s Energy Import (Thousand \$)

Years	Total Import	Energy Import	Current Account Deficit	Energy Import / Total Import	Energy Import / Current Account Deficit
1990	22.407.000	4.622.407	-26.250.000	21%	-18%
1991	20.883.000	3.756.889	2.500.000	18%	150%
1992	22.791.000	3.760.095	-9.740.000	16%	-39%
1993	29.426.000	3.964.662	-64.330.000	13%	-6%
1994	22.273.000	3.817.632	26.310.000	17%	15%
1995	34.788.000	4.619.271	-23.390.000	13%	-20%
1996	42.331.000	5.916.509	-24.370.000	14%	-24%

1997	47.158.000	6.068.315	-26.380.000	13%	-23%
1998	44.779.000	4.509.461	20.000.000	10%	23%
1999	38.802.000	5.377.189	-9.250.000	14%	-58%
2000	52.882.000	9.540.584	-99.200.000	18%	-10%
2001	38.092.000	8.339.366	37.600.000	22%	22%
2002	47.109.000	9.203.888	-6.260.000	20%	-147%
2003	65.883.000	11.575.069	-75.540.000	18%	-15%
2004	91.271.000	14.407.288	-14.198.000	16%	-101%
2005	111.445.000	21.255.586	-21.449.000	19%	-99%
2006	134.671.000	28.859.098	-31.836.000	21%	-91%
2007	162.213.000	33.883.135	-37.781.000	21%	-90%
2008	193.821.000	48.281.193	-40.438.000	25%	-119%
2009	134.497.000	29.905.305	-12.168.000	22%	-246%
2010	177.315.000	38.497.229	-45.447.000	22%	-85%
2011	232.535.000	54.117.539	-75.092.000	23%	-72%
2012	236.545.000	60.114.000	-48.494.000	25%	-124%
2013	251.661.000	55.915.000	-65.034.000	22%	-86%

Source: TUIK, TCMB



Graph 3: Turkey's Energy Import

The years between 2002 – 2013, approximately 85 % of current account deficit of Turkey consists of energy importation. Since 2002, energy importation has taken 21 % part of total importation. As we see on Table 3, Turkey's foreign-source dependency has been increasing.

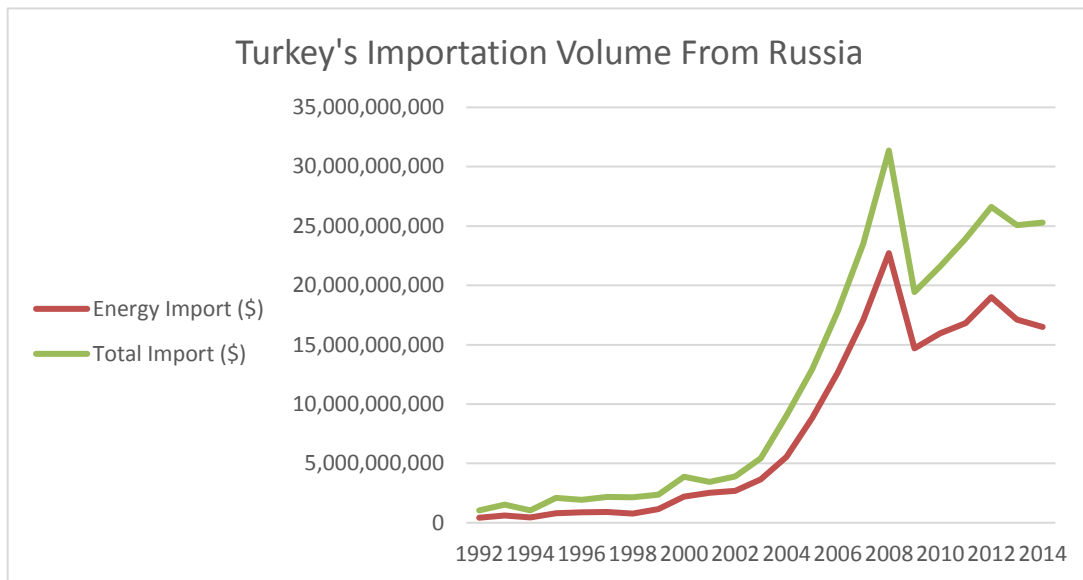
Russian Federation (RF) is one of our biggest supplier of energy especially gas. According to official reports Russia provides half of our annual gas consumption (58 %) ⁷⁴. That's why, gas importation from Russia triggers our capital account deficit. Table 4 shows that exportation energy from Russia.

Table 10: Turkey's Energy and Total Import From Russia

Years	Energy Import (\$)	Total Import (\$)	Energy / Total Import
1992	425.712.572	1.040.816.301	41%
1993	605.641.498	1.542.329.837	39%
1994	456.889.221	1.045.389.027	44%
1995	803.536.902	2.082.376.492	39%
1996	893.030.020	1.921.139.118	46%
1997	901.745.837	2.174.258.117	41%
1998	776.423.377	2.155.006.116	36%
1999	1.140.433.333	2.374.132.817	48%
2000	2.193.645.243	3.886.583.276	56%
2001	2.528.190.187	3.435.672.619	74%
2002	2.695.561.419	3.891.721.401	69%
2003	3.664.794.193	5.451.315.438	67%
2004	5.559.431.639	9.033.138.484	62%
2005	8.804.761.171	12.905.619.879	68%
2006	12.631.359.669	17.806.238.758	71%
2007	17.084.631.133	23.508.494.288	73%
2008	22.717.617.023	31.364.476.862	72%
2009	14.679.466.161	19.450.085.570	75%
2010	15.952.530.451	21.600.641.439	74%
2011	16.833.086.673	23.952.914.321	70%
2012	19.012.812.669	26.625.286.056	71%
2013	17.117.412.098	25.064.213.832	68%
2014	16.493.134.068	25.288.597.271	65%

Source: TUIK

⁷⁴ Enerji Piyasası Düzenleme Kurulu (EPDK), Doğalgaz Piyasası Sektör Raporu, page: 23.



Graph 4: Turkey's Import From Russia

As we see on Graph 4, Turkey's energy dependency from Russia is very high. In 2009, the World economic crisis affected Turkish economy like other economies. That year Turkish import value decreased but now, Turkish energy importation from Russia has been increasing. Since 1992, when USSR dissolved and emerged Russian Federation, 60 % of all Turkey's importation from Russia consists of energy importation.

5.2. ECONOMETRIC METHOD, DATA SET AND EMPIRICAL RESULTS

Quarterly data are used which are between 1992:Q1-2013:Q4 in this study. The series are seasonally adjusted by "Tramo-Seats Options" method. Y_d (GDP), Y_f (OECD countries' income) and E (real effective Exchange rate) are used in real ones. Data were taken from TCMB – Turkish Central Bank, Electronic Data Distribution System, TÜİK – Turkish Statistical Institute and OECD Data Bank.

The definition of variables are like that:

DEF = Seasonally Adjusted Real Current Deficit

M = Seasonally Adjusted Real Energy Import From Russia

X = Seasonally Adjusted Real Energy Export to Russia

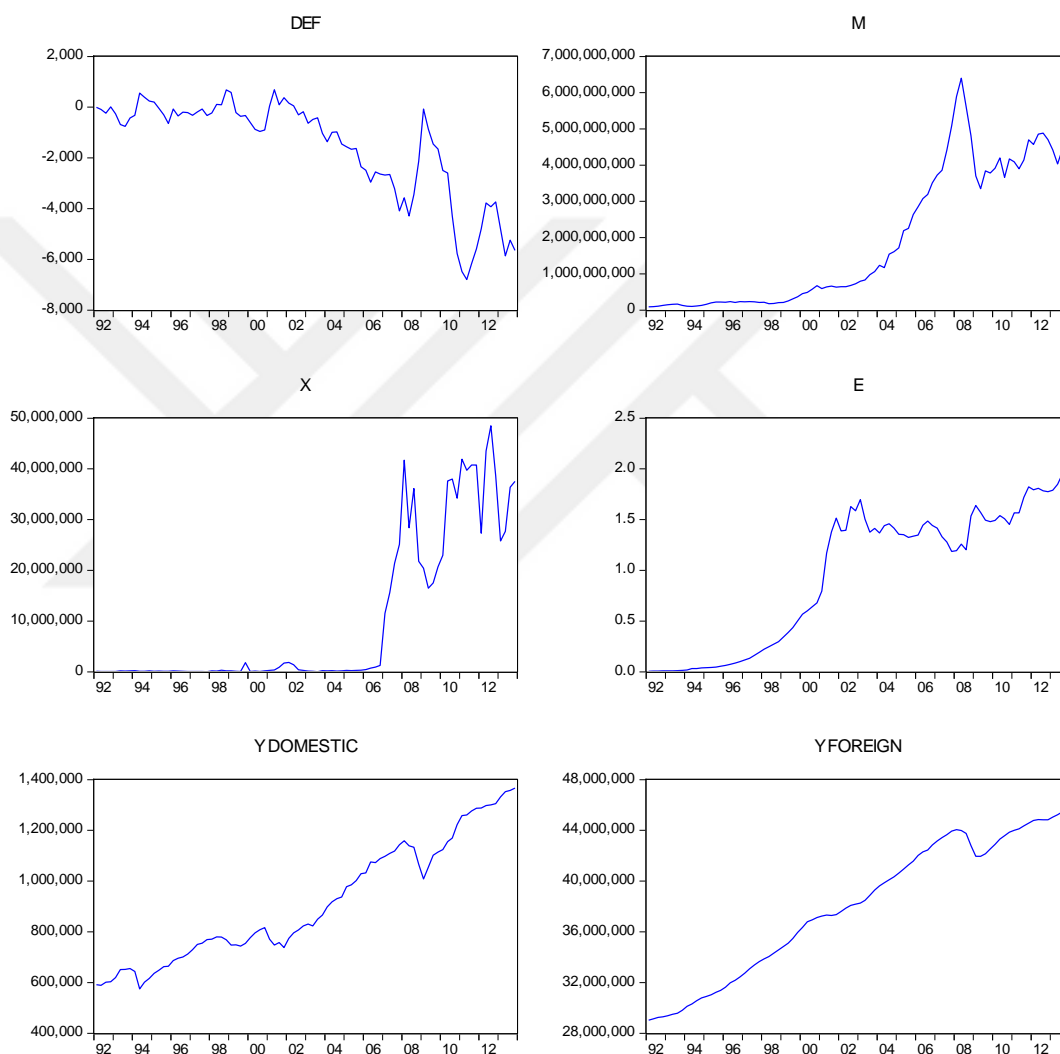
E = Seasonally Adjusted Real Effective Exchange Rate

YDOMESTIC = Seasonally Adjusted Real GDP

YFOREIGN = Seasonally Adjusted Real OECD Countries' Incomes

In order to get more information about variables' form, time – path graphics are examined firstly, then their stationary forms are evaluated with help of unit-root test. The variables' time-path graphics are shown in Figure 1.

Figure 1: The Time-Path Graphics of the Series



In Figure 1, we can clearly observe that all series have a trend. Except for the series of $Y_{foreign}$, all series have fluctuating nature. Despite the series of $Y_{foreign}$ declined in 2008, which a crisis year, its general trend is constantly increasing. The series of DEF has generally declining trend. Current account deficit firstly increased then decreased in 2008 and reached its lowest point in 2010. Energy import from

Russia is generally increasing and reached its highest point shortly before 2008. After 2006, when the energy export to Russia around “0” until that time, export trend is generally increasing with fluctuation. The series of Y_{domestic} and E also have increasing trends.

In this study, there must be examined to the time time series’ stationary situation. In order to detect whether these series have unit-root or not, Augmented Dickey-Fuller Test (ADF) (1981), Philipps-Perron (PP) (1988) and Kwiatkowski, Phillips, Schmidt, Shin (KPSS) (1992) unit-root tests are used in the study. Because of the supporting the stationary test results, the three tests are used at the same time.

The ADF and PP unit-root test solutions of the variables are shown in Table 1. Values in the paranthesis are their lag-length. In order to decide how many dependent variable’s lag-length will stay in the right part of the equation, Schwarz (SIC) criterion is used.

Table 11: ADF and PP Unit-Root Test Results

Variable	ADF test statistics		Phillips-Perron test statistics		Stationary, Trend	Sonuç
DEF	-3,195064 (1)	P=0.0923	-2,874688 (3)*	P=0.1758	stationary, trend	There is a unit-root
M	-2,414516 (1)	P=0.3696	-2,180996 (3)*	P=0.4938	stationary, trend	There is a unit-root
X	-2,543608 (0)	P=0.3070	-2,448559 (2)*	P=0.3526	stationary, trend	There is a unit-root
E	-1,952093 (1)	P=0.6186	-1,793327 (2)*	P=0.6997	stationary, trend	There is a unit-root
YDOMESTIC	-2,282339 (1)	P=0.4386	-2,063177(2)*	P=0.5585	stationary, trend	There is a unit-root
YFOREIGN	-1,038710 (2)	P=0.7362	-0,959178(5)*	P=0.7645	stationary	There is a unit-root
DDEF	-7,078695 (0)	P=0.0000	-7,078695 (0)	P=0.0000	none	There isn't an unit-root
DM	-6,200636 (0)	P=0.0000	-6,236234(2)*	P=0.0000	none	There isn't

						an unit-root
DX	-10,81107 (0)	P=0.0000	-10,88661(4)*	P=0.0000	none	There isn't an unit-root
DE	-7,128367 (0)	P=0.0000	-7,127481(1)*	P=0.0000	stationary	There isn't an unit-root
DYDOMESTIC	-7,116544 (0)	P=0.0000	-7,128033(1)*	P=0.0000	stationary	There isn't an unit-root
DYFOREIGN	-4,787411 (1)	P=0.0002	-4,033895(2)*	P=0.0020	stationary	There isn't an unit-root

Note: If p-value is bigger than 0.05, there is unit-root. On the contrary, there isn't an unit-root.

*Bandwidth (Newey- West using Bartlett kernel) Phillips-Perron.

ADF and PP unit-root test results showed that variables aren't stationary. The first differences of the variables are stationary. In addition, related to unit-root tests, in order to support series first differences are stationary, KPSS Test is made. KPSS Test results are shown in Table 2.

Table 12: KPSS Test Results

Variables	LM-Stat	Stable, Trend	Asymptotic Critical Value (%5)	Sonuç
DEF	0.219538	stable, trend	0.146000	not stationary (there is unit-root)
M	0.186225	stable, trend	0.146000	not stationary (there is unit-root)
X	0.275155	stable, trend	0.146000	not stationary (there is unit-root)
E	0.154032	stable, trend	0.146000	not stationary (there is unit-root)
YDOMESTIC	0.215315	stable, trend	0.146000	not stationary (there is unit-root)
YFOREIGN	0,213309	stable, trend	0.146000	not stationary (there is unit-root)
DDEF	0.072850	stable	0.463000	stationary (There isn't an unit-root)
DM	0.089034	stable	0.463000	stationary (There isn't an unit-root)
DX	0.160535	stable	0.463000	stationary (There isn't an unit-root)
DE	0.096506	stable	0.463000	stationary (There isn't an unit-root)
DYDOMESTIC	0.147684	stable	0.463000	stationary (There isn't an unit-root)
DYFOREIGN	0.134899	stable	0.463000	stationary (There isn't an unit-root)

According to Table 2 LM test statistics, 5 % significance level, are bigger than KPSS critic values, they are not stationary and have unit-roots. The first difference of variables are stationary with the same test.

After the examination of the variables' time-series characters, Ordinary Least Square (OLS) Model is used for econometric model which is built with stationary series. Lag Length is 8 periods (2 years). Lag Length is the common result of LR (sequential modified LR test statistic), FPE (Final prediction error) ve AIC (Akaike information criterion) information criterion tests with 5 % significance level.

The first econometric model is like that below:

$$DDEF_t = \alpha_0 + \sum_{i=1}^8 \gamma_i DDEF_{t-i} + \sum_{i=0}^8 \beta_i DM_{t-i} + \sum_{i=0}^8 \delta_i DX_{t-i} + \sum_{i=0}^8 \Phi_i DE_{t-i} + \sum_{i=0}^8 \Psi_i DYDOMESTIC_{t-i} + \sum_{i=0}^8 \Theta_i DYFOREIGN_{t-i} + a_0 DUM_1 + b_0 DUM_2 + c_0 DUM_3 + d_0 TREND_t + u_t$$

“D” means which is attached before variables means that first difference has been taken. Dummies for 1994 (DUM1), 2000 (DUM2) and (DUM3) are used for these years which are crisis years. The trend variable is added to the model as an explanatory variable because series have trends. Table 3 shows OLS estimation results of that model.

Table 13: OLS Estimation Results (Extended Model)

Dependent Variable: DDEF				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-841.2633	353.7919	-2.377848	0.0270
DDEF(-1)	-0.195378	0.148259	-1.317814	0.2018
DDEF(-2)	-0.316358	0.162311	-1.949078	0.0648
DDEF(-3)	-0.010009	0.173266	-0.057766	0.9545
DDEF(-4)	-0.196070	0.176035	-1.113812	0.2779
DDEF(-5)	-0.187679	0.182592	-1.027855	0.3157
DDEF(-6)	-0.219510	0.183699	-1.194948	0.2454
DDEF(-7)	-0.279117	0.175854	-1.587211	0.1274

DDEF(-8)	-0.131242	0.189886	-0.691162	0.4970
DM	-7.10E-07	2.82E-07	-2.513721	0.0202
DM(-1)	-8.17E-07	3.47E-07	-2.356590	0.0282
DM(-2)	-1.20E-06	4.04E-07	-2.978927	0.0072
DM(-3)	3.84E-07	2.96E-07	1.296807	0.2088
DM(-4)	5.58E-07	3.58E-07	1.559094	0.1339
DM(-5)	-2.59E-08	3.24E-07	-0.079738	0.9372
DM(-6)	-5.37E-07	3.21E-07	-1.671550	0.1094
DM(-7)	-4.47E-07	3.14E-07	-1.424364	0.1690
DM(-8)	1.28E-07	4.22E-07	0.303177	0.7647
DX	4.51E-05	1.77E-05	2.554263	0.0185
DX(-1)	5.70E-06	2.17E-05	0.263242	0.7949
DX(-2)	6.57E-07	1.50E-05	0.043734	0.9655
DX(-3)	-5.90E-05	1.81E-05	-3.259024	0.0038
DX(-4)	-4.01E-05	2.57E-05	-1.559421	0.1338
DX(-5)	-4.59E-05	2.91E-05	-1.574578	0.1303
DX(-6)	-1.18E-05	3.05E-05	-0.386090	0.7033
DX(-7)	7.16E-05	3.79E-05	1.890680	0.0725
DX(-8)	5.13E-05	2.81E-05	1.828082	0.0818
DE	3.900734	881.0428	0.004427	0.9965
DE(-1)	1241.740	875.4766	1.418359	0.1708
DE(-2)	468.8220	871.9715	0.537657	0.5965
DE(-3)	-659.6724	899.6772	-0.733232	0.4715
DE(-4)	862.0555	689.2796	1.250662	0.2248
DE(-5)	637.9245	838.2887	0.760984	0.4551
DE(-6)	-126.2596	832.1703	-0.151723	0.8809
DE(-7)	-731.2892	706.1537	-1.035595	0.3122
DE(-8)	1504.495	732.6024	2.053631	0.0527
DYDOMESTIC	0.006589	0.003075	2.142506	0.0440
DYDOMESTIC(-1)	0.006415	0.003820	1.679170	0.1079
DYDOMESTIC(-2)	0.011688	0.004560	2.563465	0.0181
DYDOMESTIC(-3)	0.000715	0.003111	0.229775	0.8205
DYDOMESTIC(-4)	-0.003460	0.003922	-0.882240	0.3876
DYDOMESTIC(-5)	-0.001052	0.003663	-0.287098	0.7769
DYDOMESTIC(-6)	0.004323	0.003851	1.122411	0.2744

DYDOMESTIC(-7)	-0.005692	0.003783	-1.504739	0.1473
DYDOMESTIC(-8)	-0.002346	0.003830	-0.612516	0.5468
DYFOREIGN	0.000723	0.000631	1.146693	0.2644
DYFOREIGN(-1)	-4.66E-05	0.000635	-0.073314	0.9422
DYFOREIGN(-2)	7.73E-05	0.000787	0.098250	0.9227
DYFOREIGN(-3)	-0.000275	0.000628	-0.437639	0.6661
DYFOREIGN(-4)	0.001481	0.000789	1.877920	0.0744
DYFOREIGN(-5)	-0.000619	0.000594	-1.042336	0.3091
DYFOREIGN(-6)	0.000842	0.000751	1.120923	0.2750
DYFOREIGN(-7)	7.59E-05	0.000778	0.097642	0.9231
DYFOREIGN(-8)	0.001126	0.000651	1.729441	0.0984
DUM1	1099.247	352.9905	3.114097	0.0052
DUM2	-412.6743	292.3245	-1.411699	0.1727
DUM3	2043.429	637.9465	3.203135	0.0043
@TREND	-1.563069	3.922356	-0.398503	0.6943
R-squared	0.945794	Jarque-Bera		5.222706 P=0.173435
Adjusted R-squared	0.798664	Breusch-Godfery Ser. Corr. LM		0.192899 P=0.6652
Log likelihood	-501.3284	ARCH		1.724769 P=0.1104
F-statistic	6.428267 P= 0.000010	Ramsey Reset		0.111052 P=0.7424

Insignificant variables are thrown out from the Model with 5 % significance level. The final model is like that below:

$$\begin{aligned}
 DDEF_t = & \alpha_0 + \sum_{i=1}^6 \gamma_i DDEF_{t-i} + \beta_i DM_{t-i} + \sum_{i=0}^3 \delta_i DX_{t-i} + \Phi_i DE_{t-i} + \Psi_i DYDOMESTIC_{t-i} + \sum_{i=0}^8 \Theta_i DYFOREIGN_{t-i} \\
 & + a_0 DUM_1 + b_0 DUM_2 + c_0 DUM_3 + u_t
 \end{aligned}$$

Table 14: OLS Estimation Results (Final Model)

Dependent Variable: DDEF				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-86.23475	110.6457	-0.779377	0.4392
DDEF(-1)	-0.010158	0.105874	-0.095942	0.9239
DDEF(-2)	-0.286834	0.102755	-2.791438	0.0073
DDEF(-3)	0.098709	0.092321	1.069186	0.2898
DDEF(-4)	-0.283717	0.092960	-3.052044	0.0035
DDEF(-5)	-0.066905	0.095953	-0.697268	0.4887
DDEF(-6)	-0.255180	0.095807	-2.663476	0.0102
DM	1.36E-07	1.28E-07	2.036030	0.0349
DX	1.86E-05	1.03E-05	1.802055	0.0772
DX(-1)	-3.75E-05	1.11E-05	-3.371138	0.0014
DX(-2)	-3.19E-06	1.10E-05	-0.289879	0.7730
DX(-3)	-4.20E-05	1.12E-05	-3.762558	0.0004
DE	-460.0785	639.2845	-0.719677	0.4749
DYDOMESTIC	0.010982	0.002798	3.924975	0.0003
DYFOREIGN	-0.000452	0.000489	-0.924423	0.3595
DYFOREIGN(-1)	4.48E-05	0.000498	0.089853	0.9287
DYFOREIGN(-2)	0.000268	0.000482	0.555153	0.5811
DYFOREIGN(-3)	-0.000549	0.000466	-1.179739	0.2434
DYFOREIGN(-4)	-0.001072	0.000486	-2.208620	0.0315
DYFOREIGN(-5)	0.001026	0.000496	2.067833	0.0536
DYFOREIGN(-6)	0.000476	0.000525	0.907872	0.3681
DYFOREIGN(-7)	-0.000228	0.000453	-0.502671	0.6173
DYFOREIGN(-8)	-0.000952	0.000370	-2.575832	0.0128
DUM1	202.4290	230.9188	0.876624	0.3846
DUM2	-109.2923	190.8027	-0.572802	0.5692
DUM3	282.2463	294.7089	0.957712	0.3426
R-squared	0.772778	Breusch-Godfery Ser. Corr. LM (1 Gecikme)		1.723646 P=0.1950
Adjusted R-squared	0.665598	Jarque-Bera		1.621091 P=0.444616
Log likelihood	-557.9373	ARCH (1 Gecikme)		0.002098 P=0.9636
F-statistic	7.210085 P= 0.000000	Ramsey Reset (1 Gecikme)		0.436277 P=0.5797

DDAF's lag length is 6, DX's lag length is 3 and DYFOREIGN's lag length is 8 period in final estimation model. DM, DE and DYDOMESTIC are used in their level (t period). When identification tests are made for that equation, we can clearly understand that there are no autocorrelation (Breusch-Godfery Ser. Corr. LM), heteroscedasticity (ARCH) ve under specified (Ramsey Reset) problems. Error terms are distributed normally (Jarque – Bera). Thus, we can say that results are reliable.

Table 15: Ramsey Reset Test

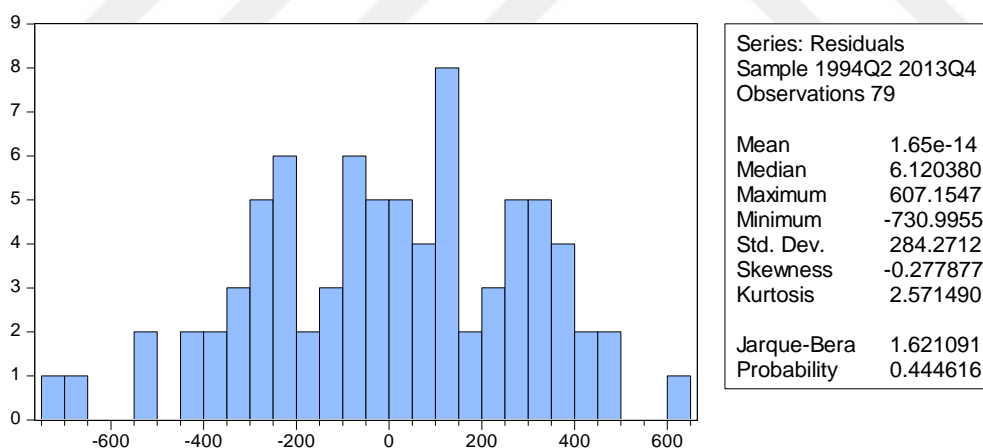
Ramsey RESET Test			
	Value	df	Probability
t-statistic	0.660513	52	NA
F-statistic	0.436277	(1, 52)	0.5797
Likelihood ratio	0.660041	1	0.4165

Table 16: Breusch-Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.723646	Prob. F(1,52)	0.1950
Obs*R-squared	2.534601	Prob. Chi-Square(1)	0.1114

Table 17: Heteroskedasticity Test: ARCH

Heteroskedasticity Test: ARCH			
F-statistic	0.002098	Prob. F(1,76)	0.9636
Obs*R-squared	0.002154	Prob. Chi-Square(1)	0.9630

Table 18: Normality Test

When the final model is evaluated, current account deficit equation, which is identified by literature of economics, is valid for energy trade between Russia and Turkey. Turkey's energy import from Russia has a positive and significant effect on Turkey's current account deficit. It means, when Turkey's energy import increases, Turkey's current account deficit also increases. Although Turkey's energy export to Russia is at a very small scale, its effect on Turkey's current account deficit is

negative and significant. Thus, we can clearly say that if Turkey's energy export to Russia increases, Turkey's current account deficit decreases.

Real Gross Domestic Product is one of the important indicators of import. In literature, it is accepted that when a country's domestic income gets higher, its import level also gets higher. Thereby, increasing of real income causes increasing of import; increasing of import causes increasing of current account deficit. In this study, we can understand that an increase in domestic income leads to an increase in Turkey's current account deficit.

Real foreign countries' income is one of the important indicators of export. Increasing of foreign income causes increasing of export; increasing of export causes decreasing of current account deficit. In this study, we can clearly say that export has a negative and significant effect on Turkey's current account deficit, what is coherent in terms of literature. In order to decrease its current account deficit, Turkey should increase energy export to Russia and should decrease energy import from Russia. To achieve that aim, using of renewable sources is very important for Turkey. Turkey is very rich country in terms of wind and solar energy types. Erecting new renewable resource plants can help to reduce our dependence to Russia. Nuclear energy plants can be also an important choice to decrease our dependency to Russia. Finally, domestic energy production helps to reduce Turkey's current account deficit.

To sum up, according to econometric results; Turkey's current account deficit will grow when the energy import from Russia increases. Russian natural gas composes 50 % of Turkey's natural gas need annually. If that trend will continue increasingly, Turkey's current account deficit will grow. In contrast, if Russia imports energy from Turkey more, Turkey's current account deficit will gradually decrease.

CONCLUSION

Energy is the source of all economic sectors like transportation, agriculture, industry and trade. That's why energy policies are one of the most important policies for the countries. Turkey is energy poor country in terms of hydrocarbon sources, that's why Turkey needs to import energy from other countries like Russia, Azerbaijan, Iraq and Iran. However, Russia is using energy policies as a diplomatic weapon. To protect this diplomatic weapon and its privilege, Russia annexed to Crimea in 2014. After this annexation, Russia empowered its position in Black Sea and in energy routes. Russia is also making long-run energy agreements with other countries, especially with China, to protect and use its natural resources as a weapon.

To Turkey, Russia is the biggest energy supplier especially for natural gas. Turkey spent approximately 60 billion USD Dollar in 2013 for its energy needs. In addition, most of that money went to the budget of Russia. Unfortunately, Turkey's dependency from Russia is increasing. Because of the new energy deals and agreements, which are basically for natural gas, empowers this dependency. However, Turkey has opportunities and variants to get rid of that economic and political problem.

In this thesis, econometric results showed that Turkish current account deficit is highly affected by Russian energy imports. Collected data from reliable sources were gathered and examined. Because of the data's characteristics, all series are seasonally adjusted by Tramo-Seats Options method firstly. Then, variables' stability was checked by unit root tests which are Augmented Dickey-Fuller (ADF) Test, Phillips-Perron (PP) Test and Kwiatkowski, Phillips, Schmidt, Shin (KPSS) Test. According to these tests, first differences of the variables are stationary. The Ordinary Least Square Test (OLS) was used to find the final estimation results. According to these results, Turkish current account deficit is highly negative affected by energy imports from Russia. If Turkey will end its energy dependence to Russia, Turkey's current account deficit will decrease in half. If the energy prices increase 2 US Dollars, Turkish current account deficit also increases 1 billion US Dollar. Turkey is a developing country. According to the final results of the model, Turkey's current account deficit is larger when Turkey's GDP is higher. Turkish economy and export

industry actually is dependent on import goods. That's why when Turkey is richer, energy imports higher. Because of high energy import, Turkish current account deficit become worse.

As we can see the examples of Russian policies in Black Sea region and with Europe, energy policies are not only subject of economic topics but also security issues. Russia to hold new hydrocarbon sources in Black Sea, annexed Crimea. Russia holds rich hydrocarbon sources in Black Sea region now. In addition, Russia makes long-term contracts with China to export its natural gas. With 400 billion US Dollar valued agreement, Russia will sell natural gas to China in next 30 years. It is also big advantage of Russia. All these examples shows that Russia uses its energy sources not only for economy but also for international policies. That's why Turkey needs get rid of that energy boundary from Russia as soon as possible.

Turkey has high potential of local and renewable resources. It is estimated that Turkey can supply itself with its own coal and renewable resources. However, Turkey needs planning to sustainable development. These resources must be used efficiently. Energy dependency means economic dependence. In addition, economic dependence causes political, military and diplomatic dependence. These things aren't subject of national independence and sovereignty. Turkey should its energy resources more sufficiently. Turkey should minimize the loss and leakage of electricity usage. Turkey needs source variance in terms of energy. Turkey is poor country in terms of petroleum and natural gas. However, Turkey isn't poor country in terms of coal and renewable energy. Turkey has the 7th biggest geothermal energy potential, so it needs more investment. Turkey is one of the richest country in the World in terms of potential of solar energy. Mediterranean and eastern parts of the Turkey have great potentials for solar energy.

Turkey has high potential of hydraulic energy. Turkey can generate 433 billion kilo-watt hour (kWh) annually under suitable conditions. It means that Turkey is the second richest country in terms of hydraulic energy potential in Europe. Turkey uses 60 % of its hydraulic potential to generate electricity.

Wind energy is another suitable renewable energy source for Turkey. Turkey has a rich geography to use wind resources. However, from now on Turkey hasn't used its wind energy resources efficiently. Turkey only use 5 % of its wind resource

capacity. Germany, China and the United States of America invests more money in this sector. Turkish western and North-western coastals have an important capacity to use wind resources. According to Ministry of Energy and Natural Resources of Turkey data, Turkey's wind energy capacity is approximately 50,000 Mega-Watt (MW) that is 10 times more than Germany's capacity.

Solar energy is also a very important energy resource for our World. Turkey has rich geography to catch the Sun lights. Because of Turkey's geographical location, Turkey's potential is very high. Turkey's annual and general catching sun light duration is 2640 hours. The most effective time to use the solar energy is in June, July and August months. Solar energy can be used for not only to generate electric but also to water heating and thermal energy. According to General Management of Renewable Resources of Turkey data, southern part of Turkey has huge potentials to use solar energy. However, Turkey doesn't use this resource to generate power. Solar energy panels generate only 1 % of Turkish annual energy need. We should use solar energy to Turkey's future which is cleaner than petroleum and local.

Turkey has young generations, so Turkey's energy need will increase in future. Turkey imports 75 % of its annual energy need from other countries, especially from Russia. Using natural gas has the largest share in electricity production in Turkey which is around 40 %. Energy import affects Turkey's current account deficit negatively. To prevent this problem, Turkey must use its renewable and natural resources like hydraulic, wind and solar energy. Turkey is very rich country for all these resources. Turkey needs investment and a good plan to use them efficiently. Especially for solar and wind energy can change the situation Turkey's future. Especially solar and wind technologies are friendly for nature and they can be used forever. Turkey should use this energy resources to decrease current account deficit which is very important in Turkish economy. New policies can also help to produce new policies toward Russia who is using its resources as a diplomatic weapon.

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