THE ENERGY CORRIDOR IDENTITY OF TURKEY

AND

SUPPLY SECURITY DIMENSION OF THE EU ENERGY POLICY

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AUGUST 2006

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A THESIS SUBMITTED TO

THE GRADUATE SCHOOL OF SOCIAL SCIENCES

OF

THE IZMIR UNIVERSITY OF ECONOMICS

BY

EMİR BAKIR

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE

OF MASTER OF ART

IN

THE GRADUATE SCHOOL OF SCIENCES

AUGUST 2006

Approval of the Graduate School of Social Sciences

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ABSTRACT

THE ENERGY CORRIDOR IDENTITY OF TURKEY AND SUPPLY SECURITY DIMENSION OF THE EU ENERGY POLICY

BAKIR, EMİR

European Studies, Department of International Relations and the European Union

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August 2006, 143 pages

The gradual exhaustion of the fossil fuels, effect the developed and developing countries of which the economies are fairly dependent on these resources directly. On the other hand, finding, extracting, operating of these natural resources by the regions and states who posess them, influence the consumers also at the vital level, not only the producer states. To reach the enrgy resources without problems, to provide supply safety and utilize most efficiently by making the minimum damage as possible to the nature constitute the Fundamentals of the modern energy understanding of our day. At this stage, the yesterday, today and probable tomorrow of the European Union of which the excessive dependence to foreign resources is argued have been analysed; also the energy corridor identity which is in direct contact with the energy supply safety of the European Union and which will make Turkey regain its importance it has lost in international area with the termination of the Cold War. And another focal point of the study is the natural resource rich Caspian Region and some Central Asian States which have regained their liberties with the demolition of the Soviet Union.

When the consumption values of our day and the consumption forecasts made about the future are taken into consideration, the energy supply safety has surpassed being solely an economical dimensioned issue and has become one of the most important subjects which will determine the tomorrow of the nations, states and communities of states. The demand and consumption of the European Union, the geographical location of Turkey and its dependence on the external resources and the richness of the Caspian region's petroleum and natural gas resources, bring these three actors to the front stage in the Great Game of Energy.

The Keywords: Energy, The Energy Policy of the European Union, Khazar Region resources, Energy Supply Safety, Turkey Energy Corridor Identity, Fossil Fuels.

ÖZET

TÜRKİYE ENERJİ KORİDORU KİMLİĞİ VE AVRUPA BİRLİĞİ ENERJİ POLİTİKASININ ARZ GÜVENLİĞİ BOYUTU

BAKIR, EMİR

Avrupa Çalışmaları Yüksek Lisans, Uluslararası İlişkiler ve Avrupa Birliği Bölümü

Tez Yöneticisi: Prof. Dr. Tunçtan Baltaçıoğlu

Ağustos 2006, 143 sayfa

Fosil yakıtların giderek tükenmesi ekonomileri bu kaynaklara oldukça bağımlı olan gelişmiş ve gelişmekte olan ülkeleri doğrudan etkilemektedir. Diğer yandan, bu doğal kaynaklara sahip bölge ve devletlerin bunları bulup, çıkartıp, işletmesi sadece üretici devletleri değil tüketicileri de hayati düzeyde etkilemektedir. Enerji kaynaklarına sorunsuz bir biçimde ulaşmak, arz güvenliğini sağlamak ve doğaya mümkün olduğunca en az tahribatı yaparak en etkili biçimde kullanmak günümüz modern enerji anlayışının temelini oluşturmaktadır. Bu aşamada, yabancı kaynaklara olan aşırı bağımlılığı ele alınan Avrupa Birliğinin ortak enerji politikasının dünü, bugünü ve muhtemel yarınını analize edilmiş; ayrıca Avrupa Birliğinin enerji arzı güvenliğiyle vasıtasız temas halinde olan ve Türkiye'ye Soğuk Savaşın sona ermesiyle uluslararası alanda kaybettiği önemini geri kazandıracak olan enerji koridoru kimliği incelenmiştir. Çalışmanın bir diğer odak noktası ise Sovyetler Birliğinin yıkılmasıyla özgürlüklerini geri kazanan doğal kaynak zengini Hazar Bölgesi ve bazı Orta Asya Devletleridir.

Günümüz tüketim değerleri ve gelecek hakkında yapılan tüketim tahminleri göz önünde bulundurulduğunda, enerji arzı güvenliği sadece ekonomik boyutlu bir mesele olmaktan çıkıp milletlerin, devletlerin ve de devlet topluluklarının yarınlarını belirleyecek olan en önemli konulardan biri haline gelmiştir. Avrupa Birliği'nin talebi ve tüketimi, Türkiye'nin coğrafi konumu ve dış kaynaklara olan bağımlılığı ve Hazar bölgesi petrol ve doğal gaz kaynaklarını zenginliği, bu üç aktörü enerji Büyük Oyununda ön plana çıkartmaktadır.

Anahtar Kelimeler: Enerji, Avrupa Birliği Enerji Politikası, Hazar Bölgesi kaynakları, Enerji Arz Güvenliği, Türkiye Enerji Koridoru Kimliği, Fosil Yakıtlar.

This Thesis is dedicated to my dear mother

ACKNOWLEDGMENTS

Above all I would like to thank my thesis adviser Prof. Dr. Tunçtan Baltaçıoğlu for his guidance and suggestions during this research. This work would not have been possible without the support and encouragement of him.

I thank you very much to my mother Ayten Bakır who has established all her dreams on me, my dear father Mustafa Bakır, my grandfather Recep Uslu who has never withdrawn his support to me. Also, I thank to Gülçin Gürcan who has lived this thesis everday as much as myself, my geatest supporter Ayşe Uslu who has a share in my each step.

I cannot pass without expressing my gratitude to Gülay Aksoy for all her assistance, to Tevfik and Selma Gürcan for opening their hearts to me, to Erkan Demir for his support and existence which is beyond description.

TABLE OF CONTENTS

LIST OF TABELS

LIST OF ABBREVIATIONS

AIOC	Azerbaijan International Operating Company
bbl	Billion barrels
Bcf	Billion cubic feet
Bcm	Billion cubicmeters
bkWh	Billion kilowatt-hours
BOTAŞ	Petroleum Pipeline Cooperation
BTC	Baku-T'bilisi-Ceyhan Pipelien
Btu	British Termal Units
CEE	Central and Eastren Europe
CIS	Common Wealth of Independent States
CPC	Caspian Pipeline Consortium
CSP	Concentrating Solar Power
DEPA	Greece Public Gas Cooperation
EC	Euroepan Community
ECT	European Charter Treaty
ECSC	Euroepan Coal and Steel Community
EEC	European Economic Communities
EU	European Union
Euratom	European Atomic Energy Community
EWAE	European Wind Energy Association
GATT	General Agreements on Tarifs and Trade
GCC	Gulf Cooperation Council
IEA	International Energy Agency

IEP	Agreement on an International Energy Programme
INOGATE	Interstate Oil and GasTransport to Europe
KIO	Karachaganak Integrated Organization
kWh	Kilowatt-hour
LNG	Liquified Natural Gas
Mbl	Millon Barrels
Mcm	Million cubic meters
mcm	Thousend cubic meters
Mmt	Million metric tones
Mm3	Million meter cubic
Mt	Million Tones
Mtoe	Million tons of oil equavalent
MWh	Megawatt-hour
NGL	Natural Gas Liquified
NATO	North Atlantic Treaty Organization
OAPEC	Organization of Arab Petroleum Exporting Countries
OECD	Organisation for Economic Co-operation and Development
OME	Observatoire Méditerranéen de l'Énergie
OPEC	Organisation of Oil Producing and Exporting Countries
OSCE	Organization for Security and Co-operation in Europe
PV	Photovoltaic
RF	Russia Federation
SEA	Single European Act
SOCAR	State Oil Company of Azerbaijan
TACIS	Technical Aid to the Commonwealth of Independent States

TAP	Turkmenistan-Afganistan Pipeline
Tcf	Trillion cubic feet
Tcm	Trillion Cubic meters
TPAO	Natural Oil and Gas Company of Turkey
TRECECA	Transport Corridor Europe-Caucasus-Asia
TWh	Terrawat-hour
UK	The United Kingdom
US	The United States
USSR	Union of Soviet Socialist Rpublics
WW I	World War One
WW II	World War Two
WT	World Total

INTRODUCTION

The rising petroleum prices, wars made for the control of the resource-rich regions, the worries felt for the fossil resources that began to be exhausted and an exhausting environment. All these have caused the energy concept to settle down in the center of our lives from our daily life to the deepest political benefit conflicts. The scarcity of resources, their gradual diminution, along with that, the demand increase which cannot be prevented, cause everybody to think twice. Where are we going to? Can the modern world, that we are used to, stand nonexistence of fossil fuels? Can the new and renewable resources substitute the fossil fuels? On the other hand, how long more can the old world stand the destructive consumption of the fossil fuels?

The first part of this study, while searching for the meaning of the energy concept, sheds a light to the history, development and today of the modern energy resources. The time lost may be more precious than the fossil fuels lost every moment. A lot has changed since the World War II (WW II) when petroleum settled down completely to our lives and lived its golden age. The petroleum assets which were supposed to be eternal and endless began to regress and be exhausted. The natural gas which is carbon-based like petroleum, while appearing as a rescuer to reduce the dreadful environmental impacts of petroleum an especially coal, the scarcity of the resources and even more important, the unfair distribution has led to the collapse of the hopes bound to the natural gas. The coal which has met 90% of the whole world energy needs by itself just a century ago, has been pushed backwards, due to reasons like the rise of petroleum, start of the nuclear energy being utilized in energy production, the environmental harms of coal and the increase lived in production costs. However, the price increase of the other carbon-based fuels and rapid development of clean coal technologies have called the coal back on stage. The

Nuclear energy of which the existence and purposes were interrogated and was recorded to the black list by the environmentalists after the Chernobyl and Three Mile Island tragedies, has today entered to the agenda of all world states again. The renewable potential of energy resources seen as the salvation of our future and asserted to be as cheap and easily accessible as much as indefinite and their kinds constitute the last section of the first part.

The European Union which is the second greatest consumer of the world and its common energy policy constitute the second part of the thesis. The European Union of which the foundations were based on two energy groups is very far away today from its past. The petroleum abundancy lived in the 1960's has led the Union to interrupt the energy policy they have established. Even the dark periods of the 70's could not drive the states for the creation of an extensive and effective energy policy, instead each member state has chosen the way of defending its own national interests. A common energy perspective which has begun to move slightly after the 1980's and the need for which could not be neglected, did not find a place neither in the Single Europe Act nor in Maastricht, neither in any important treaty. The increase lived in consumption has established the European Union energy policy in which Access to the resources and supply safety appears in the primary plan on three foundations. The first is the energy supply safety, second, establishment of an internal energy market, and the third is the environment. In this section, the safety of the energy supply has been examined, the policies followed by the union for this goal have been quoted.

The sudden collapse of the Soviet regime and appearance of the Eastern Bloc countries on the international stage suddenly, have created a new area of struggle for the energy resources. The Caspian Sea Region which satisfied a great portion of the petroleum, natural gas and coal needs of the iron curtain countries during the Soviet

era, has immediately attracted the attention of the western powers with high energy needs. The sudden collapse of the Soviets have caught these states unprepared, the scary fall lived at the production levels, the negative effects of the infrastructure which cannot be renewed because of material resource insufficiencies, and the disagreements lived between the region states have led the states which have coasts to the Caspian Sea to new pursuits during the first decade. When geographical negativities are added to all these, the job of the region states have become even more difficult. Despite all these negativities, the developments lived, the efforts spent, have been vitalized in the BTC pipeline and it has been proved that the regional resources can be communicated to the world energy markets without the overwhelming superiority of Russia. In the third part where all states are examined individually, besides the Caspian countries, Georgia at the aspect of its being the energy transit route and Armenia which was casted out because of the clashes lived despite the suitability of its geographical location have been included.

In the fourth part, as a transit country, Turkey's energy policies have been examined, and the energy picture of Turkey today have been drawn. In the beginning of the 1990's, like the western states, Turkey also has turned its face to the energy resources of the Caspian Region, has tried to be involved in all developments lived in the region in the energy area. However, the essentially important point is,Turkey, while being a neighbour to the richest energy regions of the world on one side, its being in a position to fulfill the function of a bridge between an energy market like the European Union of which the energy needs is constantly increasing. The collapse of the Soviets have made great damages to Turkey as well as it has presented opportunities and the most significant of these is its losing its geopolitical significance. Now, Turkey can regain the geopolitical importance it has lost with its

energy corridor identity it has acquired due to the energy supply lines and transform that into a chance against EU to which it is awaiting for the full membership.

And in the final part, as a conclusion of all parts, it has been emphasized how the struggle made for the world energy resources can be turned into a positive condition for the humanity, for the states and state groups.

CHAPTER I

ENERGY: BLOOD of the MODERN WORLD

1.1. What Does Energy Mean?

It is not possible to think of the modern world without energy and energy resources. From the first modern fuels to futures, energy sources have been at the core of our world and will continue to play a dominant role. The priorities of this chapter is to clarify the fundamental terms of the concept of energy . "The original Greek word **"energy"** is made up of two words: "en" which means inner and "ergon" which means work. Consequently, energy can be defined as an "inner" work that occurs inside. In the old times, the word "energy" was used in the meaning of ability to do work, dynamism, power, and strength when it had got social characteristic".[1] Inevitably, it is hard to explain the meaning of energy in one or two definitions. For example, another definition is ability of matter and system of matter to do work or power which gets movement[2]. According to **the International Energy Agency** (the IEA), the term of energy refers to only heat and power[3].

1.2. Classification Methods of Energy Resources

Classification method is the one of the best ways to understand all types of energy resources. Inevitably, there are more than one criteria or way, which can not be described in one explanation. However, time is our essential limitation, means that

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[1] Karluk, S.Rıdvan, *Türkiye Ekonomisi, Tarihsel Geilişim, Yapısal ve Sosyal Değişim* (Economics of Turkey, Historical Development, Structural and Social Chancing), (İstanbul: Beta Basımyayın Dağıtım A.Ş., 1996), p.230.

[2] Başol, Koray, *Doğal Kaynaklar Ekonomisi, Enerji ve Çevre Sorunları* (Economics of Natural Resources, Problems of Energy and Environment), (İzmir: Aklı SelimOfset Tesisleri, 1993, 2nd Edit), p.110.

[3] Internationa Energy Agency,2004, Energy Statistic Manual, (Paris: Head of Publication Service) Available at: <http://www.iea.org/textbase/nppdf/free/2004/statistics_manual.pdf#searc=%22Energy%20Statistic%20Manual%2C%22> (Visited on October 09.2005), p.17.

modern energy resources that gain importance with the industrial revolution is going to be considered.

Main aim of this part is to reach the best explanatory method of the classification of energy resources.

A) THE FIRST METHOD: The first method can also be called as Smils' method. According to Vaclav Smil; "the earth is well endowed with two kinds of energy resources: enormous stores of fossil fuels and huge renewable energy flows of energies originating in the sun's thermonuclear reactions and in the planet's internal heat generation"[4] In this classification method energy resources are divided into two parts. First one is fossil fuels and second is renewable and new resources.

Fossil Fuels: Vaclav Smil claims that "all fossil fuels were traditionally considered as the products of ancient conversions of solar radiation into biomass, which, through fossilization, yielded different types of solids, liquids, and gases". This method separates fossil fuels into three part:

- Solid fossil fuels which are called as coal,
- Hydrocarbons which is petroleum,
- Natural Gas.

Renewable and New Resources: Other types of Smil's energies collected under the name of renewable and new resources which fall into two basic categories:

- **Solar:** Solar energy can be harnessed directly by converting radiation to heat and electricity, and indirectly by tapping solar-powered energy flows especially those of water and wind, and using biomass fuel.

[4] Smil, Vaclav, Energy Resources and Uses: A Global Primer for the Twenty-First Century; Available at:<http://home.cc.umanitoba.ca/~vsmil/pdf_pubs/Energy%20Resources%20and%20Uses.pdf.> (Visited on: December 17, 2005), p.126.

- **Terrestrial:** Geothermal is the only one which radiates from the earth's core and mantle.

B) THE SECOND METHOD: The most well-known type of classification method is primary and secondary energy resources classification. In this method, source of energy can be collected into two groups as follows:

- **Primary Energy Resources:** Petroleum, Hard Coal, Lignite, Natural Gas, Nuclear Fuels (uranium and thorium), Hydro Power, Solar Power, Wind Power, Geothermal, Dried Drug, Tidal, Wood
- **Secondary Energy Resources:** Electricity, Coke, Coal Gas (Town Gas), Biogas, Liquefied Natural Gas (LNG)

C) THE THIRD METHOD: Old and New Resources

- **Old (conventional) resources:** Old energy resources are also called as primary or unrenewable energy resources which are fossil fuels and nuclear fuels.
- **New (unconventional) resources:** Hydro power, Geothermal, wind, tidal and biomass.

The classification methods, which are defined above, are prepared by using miscellaneous criteria and ways. Consequently, the second method -primary and secondary- , which is the most satisfactory and also the well-known way to classify energy resources, is going to be frequently used in this thesis.

1.3. What Has the Earth Got?

Production and consumption balance of the energy sources is one of the main important determiners of a country's economic situation. Balance in the energy sector has a power to determine all nations' today and futures. All sectors that keep a

country alive require energy input for production. From industry to agriculture or even service sectors whose energy intensity is lower than others, need huge amount of energy consumption. It is very easy to understand that having had enough source of energy; a country is able to meet its all sectors' requirements to survive. Can you imagine what happens to a country that has not got adequate reserves? Of course, there are more than one option. As Vaclav Smil said that earth was well endowed with energy resources. Unfortunately, some regions and countries are not well endowed with energy sources. Meeting all the demand is not a problem for rich energy countries, what about others whose natural sources are insufficient to meet the demand? As it was mentioned before, there is more than one way to solve this matter. First one is purchasing. Many countries solve this problem by implementing this method. However, purchasing has always not been a solution in some cases. Mature economies of the world are able to use this method to meet their demand. On the other hand, there are too many countries whose national treasuries are empty or not enough. In order to meet demand, method of exchange of goods are not useful and adequate methods, for the countries whose natural sources is not enough, when itis used alone. Alonge with these options, using indigenous sources and improve technological level of the device, which are used for production and consumption energy, can assist to obtain more effective and useful methods to meet demand.

Not to face with the energy crisis or total economic collapse, all countries use above mentioned methods under the framework of effective and applicable energy policies. Reserves and resources must be known before the establishment of these energy policies.

1.3.1. Fossil Fuels

Fossil fuels are taken from natural resources which were formed from biomass in the geological past. In the same time, fuels composite by the fossil, which are also known as non-renewable sources of energy, may also be divided into solid fossil fuels called **coal** and liquid and gas form of hydrocarbons which are **petroleum** and **natural gas**, respectively. All kind of energy resources have huge influence and importance over our modern life style, but fossil based energy sources deserve more than others.

1.3.1.1. Oil

Today's advanced-mobile society is the fruit of the second industrial revolution which is revealed by the petroleum madness. Everything started with the entrepreneur George Bissel, who was able to foresee the future, and created the new world either purposely or not. He was the first modern investor who spent a lot of money for oil sector. His most important step towards the exploration of petroleum was sending "Colonel" Edwin L. Drake, who is the first person extracted oil from the ground by using primitive drilling method, to the Oil Creek in Pennsylvania. On August 27th, 1859, the first petroleum was extracted by the drilling method. Having extracted oil was the flash point to open new age: a black gold rush. Everything developed quickly. In history, two important events shaped the faith of petroleum; firstly, innovation of the internal combustion engine accelerated the speed of petroleum diffusion. The date of 1940s was the turning point for both oil and our life style.

One of the most precious gifts of the Mother Nature is "petroleum". Petroleum is a complex mixture of hydrocarbons, chemical compounds containing hydrogen and carbon, occurring naturally in underground reservoirs in sedimentary rock.

Coming from the Latin petra, meaning rock and oleum, meaning oil, the word petroleum is often interchanged with the word oil"[5]. Crude oil is the most important oil from which petroleum products are manufactured but several other feed stock oil is also used to make oil product. There are many varieties of crude oil because crude oil contains a wide range of hydrocarbons, depending on the location where it is found. The hydrocarbons in crude oil vary form the lightest to the heaviest, and these characteristics of the individual crude oils may determine the price. A crude oil containing many heavier hydrocarbons and fewer lighter one is considered a heavy crude oil, while in the reserve case; one calls it light oil. As an example of a heavy crude oil is the Mexican Maya oil, whereas the Nigerian Bonny Light is considered as light.

On the other hand, as it was said before, crude oil is not the single raw material to a refinery. Other primary and secondary oils can be used as feedstocks. For example, Natural Gas Liquid (NGL or LNG) is liquid hydrocarbon mixture, which is gaseous at reservoir temperatures and pressure, but is recoverable by condensation and absorption. NGL includes propane, butane, pentane, hexane and heptane but not methane and ethane, since these hydrocarbons need refrigeration to be liquefied. Apart from crude oil and NLG, a variety of other inputs are used to produce petroleum products. Among these inputs are refinery feedstock – unfinished oil which has passed through a refinery process, synthetically produced crude oils. For example from tar sands or coal liquification, and other blending components, which are blended mainly to gasoline to improve fuel components, which are blended mainly to gasoline to improve fuels properties.

[5] Energy Statistic Manual; p.20.

Like other fossil fuels, petroleum is a finite resource and one day in the future is going to be exhausted. There is a huge debate among the economists, scientists, member of government and people who are worrying about the future of our civilization. We should accept that fossil fuels are the lifeblood of modern society and the petroleum is in the center of the fossil fuels. At the moment, too many people rack their brains to solve some question. When will our oil resources run out? This vital first question is followed by another vital question which resource is going to be substituted by petroleum when it is exhausted. Will the end of oil be the end of our civilization? Everybody tries to find answers of these questions. The important point is the time, when we use the last barrel of oil, what will happen?

Mainly, two opposite side represent their idea about the future of oil civilization. Firstly, the optimistic ones believe that Mother Nature's petroleum reserves are enough to survive at least 50 years and quantity of the oil can be increased by technological improvements. On the contrary, opposite side of the optimistics argue that the peak of petroleum has already been reached and in the next one or two decades oil crisis may be occurred. The best way to understand our position on the petroleum is looking at the figures and these figures may also help us to make predictions about the future of oil's journey.

1.3.1.1.1. World's Proven Oil Reserves

According to BP 2005 data[6], the World's Proven Oil Reserves are estimated as 1188.6 billion barrels in 2004. With 773.6 million barrel the Middle East has 61.7 percent of the world's total. The richest region Middle East is followed by the Europe& Eurasia region that has 11.7 percent of the world's proven oil reserves. The

[6] Putting the energy in the spotlight,2005, BP Statistic Review of World Energy in June 2005, (England: Bacon Press)Available at:<http://www.bp.com/liveassets/bp_internet/globalbp/globalbp_uk_english/publications/energy_reviews_2005/STAGING/local_assets/downloads/pdf/statistical_review_of_world_energy_full_report_2005.pdf> (Visited on: November 19, 2005), p.4.

third richest region of the world with 9.4 percent is Africa. The last three regions are South and Central America, North America and Asia Pacific, with 8.5 percent, 5.1 percent, 3.5 percent, respectively.

In the same report, at the country level, Saudi Arabia is the richest country that has alone 22.1 percent of the world's proven oil reserves. The other petroleum wealthiest nation of the world is in the same region with the Saudi Kingdom; Iran with 11.1 percent, Iraq with 9.7 percent, Kuwait with 8.3 percent, and United Arab Emirates (UAE) 8.2 percent, are the oil richest countries of the world. Outside of the Middle East region the biggest reserve is located in the border of Venezuela that covers 6.5 percent of the world's proven oil. Ironically, while the Russian Federation, whose share is 6.1 percent, is one of the richest nation, the rest of the European countries have the poorest proven oil reserves.

1.3.1.1.2. World’s Total Oil Production

In 2004, world's oil production is estimated as 80260 thousand barrel per day (tbl/d), in other words, 3867.9 million ton per year (mbl/y). 4.5 percent increase can be seen when compared with the figures of a year before. At the regional level, the Middle East who has produced one third of the total production is again playing the leading role with 1186.6 million ton per year that comes across 30.7 percent of the total production or 24571 thousand barrel per day. Exactly one five of the total production realized in the Europe& Eurasia region who has produced 17583 thousand per day or 850.7 million ton per year. It means that 22.0 percent of the world total production is met by the Europe& Eurasia region. Despite the insufficient proven reserves the North America produce 17.3 percent of the whole oil production. In other words, the USA, Canada and Mexico, totally, produced 14150 thousand barrel per day or 668.0

million tons in 2004. In Africa production level reached 9264 thousand barrel per/day or 441.1 million tons that equals 11.4 percent of the world total oil production. Like North America, despite inadequate resources Asia Pacific region successfully produced 9.8 percent of the total share of the oil production. At last, south and Central America is the last racer of the oil production competition with it 8.8 percent share.

According to the IEA 2004 data the biggest ten producers can be enumerated as follows[7]: Saudi Arabia 492 million tons (Mt) or 12.7 percent of World Total (WT), Russia 456 Mt or 11.7 percent of WT, the United States 337 Mt or 8.7 percent of WT, Mexico 192 Mt or 4.9 percent of WT, People's Republic of China 174 Mt or 4.5 percent of WT, Venezuela 153 Mt or 4.3 percent of WT, Norway 151 Mt or 3.9 percent of world total, Canada 146 Mt or 3.8 percent of WT, Nigeria 129 Mt or 3.3 percent of WT. Rest of the world 1455 million tons or 37.4 percent of the world's total oil production.

1.3.1.1.3. World's Total Oil Consumption

The world's total oil consumption is going to be evaluating into two different levels, the regional and the sectoral ones. The oil consumption issue is more complex than the production matter. When we look at the production level of the matter, the biggest producers of the world are already having the largest reserves. On the contrary, the most attractive oil consumer is not the oil rich countries. There are two good examples. The Saudi Kingdom is the oil richest and the biggest oil producer but not one of the biggest petroleum consumers. On the other hand, despite the lack of

[7] International Energy Agency, 2005, Key World Energy Statistic 2005; (France: STEDI) Available at: <http://www.iea.org/dbtwwpd/Textbase/nppdf/free/2005/key2005.pdf > (Visited on: January 23,2006), p 13.

oil resources members of the European Union, as a whole, is the second biggest consumer of the world.

America is the world's biggest consumer with the 29.8 percent. Three North American countries, let by the US, consumed 24619 thousand barrels per day or 1122.4 million tons in 2004. The share of the USA is 937.6 million tons. This figure makes the US the biggest oil consumer of the world. Asia Pacific region of the world including China, Japan and Australia, became the second biggest consumer of the world thanks to their huge consumption potential. Their share in the consumption cake is estimated that 28.9 percent. It means that Asia Pacific nations consumed 23446 thousand barrel per day or 1090 million tons in 2004.

Ironically, as it was mentioned above, while their resources are not enough to meet the demand Europe& Eurasia region, especially western side of the region, consumed the third biggest part of the total oil production in 2004. 25.4 percent of the world oil exhausted by Europe& Eurasia region. It came across 20017 thousand barrel per day or 957 million tons. Meanwhile, Europe is consuming more than produced while the Middle East and Africa are consuming less than produced. The Middle East exhausted 6.7 percent of the world total, approximately more than 23 percent they produce. Similar the Middle East, Africa's total share in the oil cake is 3.3 percent of world total. In 2004, this continent had consumed just 2647 thousand barrel per day or 124.3 million tons. At the same time, the south and central part of America had exhausted 5.9 percent of the world's total oil consumption.

The world total oil consumption was 3767.1 million ton in 2004. Transportation has always been the locomotive sector for petroleum product. In 2003, according to IEA figure, 57.8 percent of the whole oil production had met the transportation sector requirements. The second area which petroleum had widely

been used was the industrial sector that took the nearly 20 percent of the world final consumption. The other sector comprises agriculture, commercial& public service, residential and non-specified, had 15.7 percent from the cake. As, the non-energy sector used 6.6 percent in 2003 figures.[8]

1.3.1.2. The Former King: Coal

The value of the coal was understood after the innovation of the steam engine when Thomas Newcommen and James Watt, their engine patented in 1769, invented in the early 1800's. In 1900 raw coal production of less than 80 Mt of hard coals and lignite supplied about 95 percent of the world's commercial energy[9]. In spite of the huge quantities and qualitative gains coal's share in the global fuel supply declined to less than 50 percent by the early 1960's. Thirty years ago, coal had been thought as a fuel of the past. Nuclear power and natural gas were going to take us away from the Dickensian era of coal furnaces, steam powered locomotives, and grime. But the King coal recovered, and is now used in record amounts. OPEC's oil price rises of the 1970's appeared top make room for coal's come back[10].

Coal is a fossil fuel, combustible, sedimentary, organic rock that is compared mainly of carbon, hydrogen, and oxygen. It is formed from vegetation, which has been consolidated between other rock stara and altered by the combination effects of pressure and heat over millions of years to form coal seems. The quality of each coal deposit is determined by temperature and pressure and by the length of time in formation, which is referring to as its 'organic maturity'.

Today’s coal reserves are about one trillion tones and the global reserves/production ratio (r/p calculated by dividing the reserve total by annual

[8] Key World Energy Statistic 2005, p 35.
[9] Smil, Vaclav, p. 128.
[10] Smil, Vaclav, p. 129.

output) is about 230 years more than three times as high as the rate for natural gas and more than four times longer than the global r/p for crude oil[11].

1.3.1.2.1. World's Proven Coal Reserves

Amount of the world's proven reserves, at the end of 2004, is 909064 Mt. According to BP's latest report, different form of the hydrocarbons, proven coal reserves are distributed more equally. The coal richest region of the world is the Asia Pacific where covers 32.7 percent of the proven coal reserve. Second largest reserves located in the Europe& Eurasia region whose reserves estimated that 31.6 percent of the proven reserves. Europe& Eurasia is followed by the North America that has the 28.0 percent of the total coals. Although Africa and Middle East region have the largest oil deposits their proven coal reserves just cover 5.6 percent of the total cake. At the end, the poorest regions are the central and southern parts of America because its share on the total reserves was just 2.2 percent at the end of the 2004.

1.3.1.2.2. World's Total Coal Production

According to the latest coal related report, which published by BP[12], the world's total coal production figure is 2732.1 million tones of oil equivalent (Mtoe) that equal of 4.629 million tones. Coal was produced 7.2 percent more than a year before. China is at the top of the production rates with is 989.8 Mtoe equal of 42.3 percent of the world's total.[13] The largest coal producing countries are not confined to one region. China is at the top with 989.8 Mtoe, the USA 567.2, Australia, recently surpassed India, 199.4 Mtoe, India 188.8 Mtoe, and the fifth largest coal producing is South Africa with 136.9 Mtoe. At the regional level, in 2004, with the

[11] Smil, Vaclav, p.129.
[12] Putting the energy in the spotlight; p.30.
[13] Key World Energy Statistic 2005, p.16.

1506.3 Mtoe the Asia Pacific region is in the first position. The Asia Pacific is followed by North America whose total production figure is 606.3 Mtoe. Other region of the world are Europe& Eurasia 434.4 Mtoe, Africa 140.3 Mtoe, South and Central America 44.1 Mtoe and finally with its 0.6 Mtoe the Middle East.

1.3.1.2.3. World's Total Coal Consumption

2778.2 Mtoe coal was exhausted in 2004. At the top 6, four biggest producers are seen, but two more countries who are not the extra-ordinary producers joined the class of the largest coal consuming countries. Firstly, China did not loose her place and became the biggest consumer of globe with 956.9 Mtoe. China was followed by the the USA whose total consumption was 564.3 Mtoe. Other largest consuming countries of the world can be enumerated, India 204.8 Mtoe, Japan 120.8 Mtoe, Russia 105.9 Mtoe, and South Africa 94.5 Mtoe. At the sectoral level, according to the IEA report, in 2004, the main coal materialize in the industrial sector which consumed 76.1 percent of the total production. Other sectors which are agriculture, commercial& public service, residential take 20.4 percent of the world's total. For non energy sector 2.4 percent used up and finally, 1.0 percent was separated for transportation.[14] Coal plays vital role in power generation and its role is set to continue. Coal currently fuels 39 percent of the world's electricity and this proportion is expected to remain at the similar levels over the next 30 years[15].

The biggest market for coal is Asia, which currently accounts for 54 percent of global coal consumption-although China is responsible for a significant proportion of this. Japan, Chinese Taipei and Korea, for example, import significant quantities of

[14]Key World Energy Statistic 2005 p. 35.
[15] World Coal Institute, May 2005,The Coal Resource Acomprehensive Overview of Coal, (The United Kingdom: The World Coal Institute) Available at: <http://www.worldcoal.org/assets_cm/files/PDF/thecoalresource.pdf> (Visited on: February 19, 2005) pp.13-14.

steam coal for electricity generation and cooking coal for steel production. It is not just a lack of indigenous coal supplies that prompts countries to import coal but also the importance of obtaining specific types of coal. Major coal producers such as China, the USA and India, for example also import quantities of coal for quality and logical reasons.

1.3.1.3. The Prince of Hydrcarbons: Natural Gas

Natural gas, called "the prince of hydrocarbons" by some, is an increasingly important fuel source in the world energy system. Natural gas comprises several gases, but consists mainly of methane (CH4). As it names suggests, natural gas is taken from natural underground reserves and is not a chemically unique product. When extracted from a gas field or in association with crude oil, it comprises a mixture of gases and liquids (some of them will not be energy commodities). Only after processing does it become one of the marketable gases among the original mixture. At this stage natural gas still a mixture of gases but the methane contents predominates (typically greater than 85 percent). To facilitate transportation over long distances, natural gas may be converted liquid form by reducing its temperature to -160 degrees Celsius under atmospheric pressure. Under the normal condition it is transported by the pipe line infrastructure between regions or continents. [16]

1.3.1.3.1. World's Proven Natural Gas Reserves

At the regional level, 40.6 percent portion of the Middle East makes this part of the world natural gas richest. In this region of the world two countries have the most important place, Iran has 27.50 percent and Qatar has 25.78 percent of world's total.

[16]Flavin, Christopher and Lenssen ,Nicholas,*Power Surge: Guide to the Coming Energy Revolution*, (Washington: Worldwatch Institute , DC, 1994), pp. 44-45.

With its 35.7 percent share Europe& Eurasia have second the richest natural gas reserves. In addition, at the country level, the largest reserves of the world are located in the border of the Russian Federation who has 48.00 percent alone. Natural gas reserves are not distributed equally as similar oil reserves are. Rest of the total proven reserves, 22.8 percent of total, located different part of the world. 7.9 percent in Asia Pacific, approximately same quantity in Africa 7.8 percent, 4.1 percent in the Northern part and 4.0 percent in the Central and South America.

1.3.1.3.2. World's Total Natural Gas Production

Having the largest natural gas reserves made the Russian Federation advantageous in the race of natural gas production. According to the IEA 2005 report, production level of the RF, in 2004, meets 22.8 percent (620.095 Mm3) of the world's total demand. Although dwarfed by Russian source the USA, whose reserve just 2.9 of the total, is the second biggest producer with 19.0 percent of the total production. In spite of the lack of the enough resources two western countries Canada and the United Kingdom produced, respectively, 6.5 percent and 3.6 percent of the world's total. The rest of the largest ten natural gas producer countries can be enumerate as, Algeria 3.2 percent, the Netherlands 3.1. percent, Norway 2.9 percent, Islamic Republic of Iran 2.9 percent, Indonesia 2.8 percent, Saudi Arabia 2.3 percent. It means that more than two-third of the total natural gas production (69.5 percent) were made in these ten countries. The rest of the world could produce just 31.5 percent which means 877.235 million meter cubic (Mm3).

1.3.1.3.3. World's Total Natural Gas Consumption

16.4 percent of the world total final consumption, in 2003, was met by natural gas. In the same year, at the sectoral level, the biggest share of the produced natural gas was exhausted for agriculture, commercial& public service, and residential. Approximately half of the total production consumed for industrial application in this sector and just 5.2 percent of the total natural gas allotted for transportation.[17]In 2004, the USA was, inevitably, the biggest natural gas consumer who used up 24.6 percent, which equals of 582 Mtoe, of the world total. The world largest reserve owner and producing countries the RF could exhaust 15.0 percent (361.8 Mtoe) of this year production. 88.2 Mtoe natural gas consumption made the UK third largest gas consumer. At the regional level, the Middle East who has the largest reserves on the world just had consumed one-tenth of the 2004 production despite had more than one third of the proven reserves. On the other hand Europe& Eurasia is with the 997.7 Mtoe consumption was at the top. Europe& Eurasia were followed by the North America, led by the US, 705.9 Mtoe; Asia& Pacific 330.9 Mtoe; Middle Easte 218.0 Mtoe; with 106.2 Mtoe the Central and South America, and finally 61.8 Mtoe consumed in Africa.

1.3.2. NUCLEAR POWER

The principles of nuclear power were formulated by physicists in the early 20th century. In 1939, German scientists discovered the process of fission. In 1942, first nuclear reactor was invented by Enrico Fermi. In the same year, Fermi and his team produced the first atomic pile and produced the first nuclear chain reactor. By the late 1950s, nuclear power was being developed for commercial electric power, in

[17] Key World Energy Statistic 2005, p. 43

England. Today, countries who have or will have nuclear power face several energy issue and have to develop several major targets for nuclear power, which are ;

- To maintain exacting safety and design standards,
- To reduce economic risks,
- To reduce regularity risks,
- To establish an effective high level nuclear waste disposal program

Today's nuclear picture has some shining and dark parts. To be sure, two nuclear disasters distrusted the nuclear power and its plants. Three Mile Island accident that occurred in 1979, and Chernobyl, in 1986, catastrophe totally changed the peoples who believe the advantages of the nuclear power. Positive and negative sides of the nuclear energy production process can be enumarated as follows:

Advantages of Nuclear Energy

- The Earth has limited supplies of coal and oil. Nuclear power plants could still produce electricity after coal and oil become scarce.
- Nuclear power plants need less fuel than the ones which burn fossil fuels. One ton of uranium produces more energy than (is produced by) several million tons of coal or several million barrels of oil.
- Coal and oil burning plants pollute the air. Well-operated nuclear power plants do not release contaminants into the environment.

Disadvantages of Nuclear Energy

- Nuclear explosions produce radiation. The nuclear radiation harms the cells of the body which can make people sick or even kill them. Illness can strike people years after their exposure to nuclear radiation.
- One possible type of reactor disaster is known as a meltdown. In such an accident, the fission reaction goes out of control, leading to a nuclear explosion and the emission of great amounts of radiation.
- In 1979, the cooling system failed at the Three Mile Island nuclear reactor near Harrisburg, Pennsylvania. Radiation leaked, so thousands of people fled. The problem was solved (minutes) before a total meltdown would have occurred. Fortunately, nobody died.
- In 1986, the worst disaster struck Russia's Chernobyl nuclear power plant. In this incident, a large amount of radiation leaked from the reactor. Thousands of people were effected by radiation. A lot of people died in a few days. In the coming years, thousands people may be died by the radiation.
- Nuclear reactors also have disposal problems. The reactors produce nuclear waste products which emit dangerous radiation. They could kill people who touch them, they cannot be thrown away like ordinary garbage. Currently, many nuclear wastes are stored in special cooling pools at the nuclear reactors.

In January, 2005, 30 countries were operated 443 nuclear reactors for electricity generation. According to 2005 figures, there are currently 104 nuclear reactors (in operation) in the US which account for more than one-forth of nuclear power capacity in the world. In 2004 top ten nuclear generating countries can be

enumerated as follows; the US 788.6 bkWh, France 426.8 bkWh, Japan 273.8 bkWh, Germany 158.4 bkWh, Russia 133 bkWh, Korea RP 124 bkWh, Canada 85.3 bkWh, Ukraine 81.8 bkWh, China 79bkWh, the UK 73.7 bkWh. Twenty-five new nuclear plants were under construction in 10 countries which are Argentina (1), China (3), Taiwan (2), Finland (1), India (8), Iran (1), Japan (1), Pakistan (1), Romania (1), Russia (4), Ukraine (2).Currently, nuclear power plants provide 16 percent of the world's electricity production in 2003.

1.3.3. ARE THEY ETERNAL: RENEWABLE SOURCES AND WASTES

Renewable resources fall into two basic categories, solar and terrestrial. Solar energy can be harnessed directly by converting radiation to heat and electricity, and indirectly by tapping solar-powered energy flows, especially those of water and wind, and using biomass fuels. Renewable energy resources can be classified as follows:

1.3.3.1. Solar Origin Renewable Sources

Hydroelectric: Hydroelectric generation is the only renewable conversion that has played a major role for over a century. Thanks to technological developments, hydropower is currently the fifth largest supplier of the world electricity. According to IEA's 2005 data, in 2003, world total hydroelectric production was 2.726 TWh. Two-third of the total produced in ten countries which are Canada 12 percent of the world total (WT), Brazil 11.2 %of WT, the US 11.2 % of WT, China 10.4 % of WT, Russia 5.8 %of WT, Norway 3.9 % of WT, Japan 3.8 % of WT, India 2.8 % of WT,

France 2.3 % of WT, Venezuela 2.2 % of WT. 34.0 % (924 TWh) of the total hydroelectric power was produced by the rest of the world.[18]

The largest untapped potential remains in Africa (less than 5% of harnessed) and Asia (less than 15% of potential used). Europe and North America have already captured nearly half of the economically feasible total, or about as much as is practical to allow for necessary stream flows and other water uses[19]

Solar power: Technologically there are various ways of producing energy to be using radiation from the sun. At the beginning, using photovoltaic (PV) cells, and using semiconductor materials to convert sunlight directly into electricity worldwide, capacity equal to less than 0.1 percent of the total available in fossil fueled generator. Clearly, cost of PV generating must fall before the technique can be used as widely by households and industries as it has been successfully used in space and in specialized terrestrial application.[20] The second way is solar thermal technology provides heat and hot water for residential commercial and industrial end-uses. The third way of solar thermal electric technology, is used as concentrating solar power (CSP), creating heat to produce steam and electricity. Commercial applications, from a few kilowatts to hundreds of megawatts, are now technologically feasible though not yet economically competitive.

Wind power: The commercial development of grid connected wind generators started after the oil price crises in the 1970's building from mechanical wind machines used mostly for water pumping. In early 1980's the most commercial wind tribunes were assembled using a number of standard components[21]. These machines

[18] Key World Energy Statistic 2005, p 52.
[19] Smil, Vaclav, p.131.
[20] Smil,Vaclav, p.131.
[21] International Energy Agency, Renewable Energy , Market and Policy Trendsin IEA Countries , (Paris: Head of Publication Service) Available at:< http://www.iea.org/textbase/nppdf/free/2004/renewable1.pdf> (Visited on March 15, 2006),p, 135.

can produce electricity whose prices are already competitive with fossil-fueled generation. Because of environmental advantages (no emissions of acidifying or greenhouse gases) several countries have begun to promote its use through incentives and subsidies[22].

According the figures which was released by Global Wind Energy Council the total installed wind power capacity now stands at 59,322 MW worldwide. The countries with the highest total installed capacity are Germany (18,428 MW), Spain (10,027 MW), the USA (9,149 MW), India (4,430 MW) and Denmark (3,122 MW). India has thereby overtaken Denmark as the fourth largest wind market in the world. A number of other countries, including Italy, the UK, the Netherlands, China, Japan and Portugal have reached the 1,000 MW mark of installed capacity. In terms of new installed capacity in 2005, the US was clearly leading with 2,431 MW, followed by Germany (1,808 MW), Spain (1,764 MW), India (1,430 MW), Portugal (500 MW) and China (498 MW). This development shows that new players such as Portugal and China are gaining ground. Europe is still leading the market with over 40,500 MW of installed capacity at the end of 2005, representing 69% of the global total. In 2005, the European wind capacity grew by 18%, providing nearly 3% of the EU's electricity consumption in an average wind year.

Biomass: The term "biomass" means; any plant which is derived of organic matter available on a renewable basis, including dedicated energy crops and trees, agricultural food and feed crops, agricultural crop wastes and residues, wood wastes and residues, aquatic plants, animal wastes, municipal wastes, and other waste materials. Handling technologies, collection logistics and infrastructure are important

[22] Smil, Vaclav, p 133.

aspects of the biomass resource supply chain. Biomass energy resources contribute about 8 percent of global TPES.[23]

Other new and renewable resources: Apart from resources mentioned above there many sources which at the test level to become alternative energy. These are tides and oceans, that are mechanical energy derived from tidal movement or wave motion and exploited for electricity generation, and the waste fall into two groups: Industrial waste and municipal wastes. In spite of their environmental advantages, their costs make them are just extra resources whose capacity can not compete with fossil sources.

1.3.3.2. Terrestrial Origin Resources

The only commercial terrestrial renewable energy resources is geothermal which is available as heat emitted from within the earth's crust, usually in the form of hot water or steam. It is exploited at suitable sites[24]:

- For electricity generation using dry steam or high enthalpy brine after flashing
- Directly as heat for district heating, agriculture, etc.

Geothermal resources meet less than 0.5 percent of the world's electricity generating capacity has been installed in geothermal power plants, mostly in California, the Philippines, Mexico and Italy.[25]

1.3.4. SECONDARY ENERGY

Secondary energy is the form of energy granted by conversion of primary energies, e.g. electricity from gas, nuclear energy, coal, oil, fuel oil, and gasoline from mineral oil, coke and coke oven gas from coal.

[23] Smil, Vaclav, 133.
[24] Ibid.
[25] Smil,Vaclav.

Secondary energy sources, such as electric power or refined fuels, do not exist in nature, but can be produced from the primary energy sources. Secondary sources are important because they are frequently easier to use than the primary sources from which they are derived. The scientific principle of conservation of energy is very well established. It guarantees that we will never be able to devise a means to produce more secondary energy than the amount of primary energy that was required to make it. Therefore, our ability to use energy will always be strictly limited by the availability of primary energy sources. Electricity is the widely known and useful shape of the secondary sources. Production and consumption of electricity has a huge effect on the country's economy, for example electricity is the one of the most important input for the industry or, at least, absence of the electricity can easily collapse our modern daily life.

1.3.4.1. Production and Consumption of Electricity

The IEA data shows that, in 2003, coal is the main primary energy source for the production of electricity. Approximately half of the total electricity production (40.1 percent) was met by the coal. Another fuel for electricity generating is the natural gas whose share was 19.4 percent in 2003. Hydro power (15.9 percent) and Nuclear power (15.8 percent) were using production of the one-third of the world total electricity production. In 2003, the share of oil is completely different from it was. Thirty years ago, for 27.7 percent of the world total production oil was used. On the other hand, nowadays its share has been decreased and just met 6.9 percent of total. Finally, new and renewable sources, whose share was 1.9 percent of total, find themselves a place in the production process of electricity.

Total production was 16.661 TWh in 2003. At the regional level, OECD member countries produced 59.2 percent of world total. Asia, including China,

produced one-fifth of the world total energy production 20.3 percent. Countries located in the former USSR region produced 8.1 percent, Latin America 5.0 percent. Despite the abundant of energy resources share of the Middle East just 3.3 percent. Africa and the rest of the world produced 4.1 percent of the world total electricity in 2003. The biggest five electricity producers are the US 24.3 %, China 11.4 %, Japan 6.2%, Russia 5.5% and India 3.8%. The top five electricity exporters are France, Germany, Paraguay, Switzerland, and Canada.In the same year, the largest piece of electricity cake consumed by industrial sector whose share on the table 42.2 percent of the total. Transport get just 1.8% and rest of the world consumption (56.0%) made by agriculture, commercial and public& residential services.

CHAPTER II

IN ORDER TO SURVIVE: A COMMON ENERGY POLICY

On the one hand, aproximately 450 million poeple and 25 nation-states which mean that 25 different ideas, arguments, demands, and 25 different points of view; on the other hand being second biggest energy consumer of the world. This simple structure can show that what a hard issue which the EU has to solve. Todays energy pictures of the EU indicates that a number of dark days are waiting for the EU in the near future.

At the early years of the Community, the energy sector was percieved as a compass which was able to show the way of political integration, would pave the way to the peace, prosperity and stability in the old continent despite all agontanism. Nearly first ten years of the integration instituted around the raw matterial of the energy. Coal and nuclear were the evident of this argument. However, inexpensiveness of these resources, especially oil, was the reason why the member of the community did turn their face to another way for unification. More than a half a century, a satisfactory common energy policy have not been developed in spite of the existance of the other common policies and its necesity.

2.1. Historical Step Towards Unification: The European Coal and Steel Community

Starting point of the journey of the EU's energy policy is the signing ceremony of the Paris Agreement, on 25th of March 1951[26]. Aims of the Paris Agreement were explained before it was signed by the foundation fathers of the EU, Jean Monnet who

[26] According to Paris Agreement the ECSC was established for a period of 50 years. The treaety therefore experied on 23 July 2002. For more detail: EU Commission, Expiry of the ECSC Treaty; Available at: http://europa.eu/ecsc/index_en.htm. (Visited on: 12.09.2005).

was the French Economic Planner and Robert Schuman who was the French Foreign Minister. According to Simon Usherwood, "the end of the Second World War left the states of Europe in a profound state of shock. By integrating coal and steel sectors of the former antagonists, it was hoped that the means of production war matterials would become so interdependent that future conflict would be avoided: this was certainly the motivation behind the Schuman Decleration of May 1950".[27] In the same time, creation of a common market for these two matterial would utilize to access the other's markets for material. The time when the ECSC was entered into force, coal was in abundant supply and met 65 % of the energy requirements of the six founding countries who are France, Germany, Italy, Belgium, the Netherlands and Luxembourg. As S. Usherwood points out ", tarrifs and quotas were abolished and non-tariff barriers were reduced; assistance was given to restructuring; and both output and interstate trade were increased".[28]

Transfer of the sovereignty on the management of the coal and steel sector from national authority to the High Authority of the ECSC and its basic structure became model and institutional pattern for the successor of the community. When the time arrived early in 1957, to having more comprehensive and detailed and deepened collaboration, members of the ECSC took a decision for signing more advanced agreement which would extent the area of the High Authority and increase its power.

The High Authority of the ECSC had to face the first big crises and failed completely while the Euratom was being entered into force. In the winter of 1958-59, consumption of the coal was reduced because of the mildness, and the High Authority wanted to contain the surplus capacity of the member sountries. However, decleration of the High Authority was rejected by the members. As K.Alter and

[27] Usherwood, Simon; *Guide to EU Policies*, (Great Britain Blackstone Press Limited;London; 1998) p.125.
[28] Usherwood, Simon, p.126.

D.Steinberg assess, “France, Italy and Germany voted against empowering the High Authority to act. De Gaule opposed to supranational solutions and wanted a different plan for each country because of their different economic cycles. Germany did not want a move towards a centrally controlled economy. Benelux and Italy had different views on the quota system.”.[29] Despite the “Winter Failure”, the ECSC was more fortunate than its successor- the Euratom.

2.2 Enhanced Cooperation For More Unification: The European Atomic Energy Cooperation

The 1957’s Rome Treaties are one of the most important corner stone for the latter Europe and the EU history. With this Agreement two more institutions were established to improve solidarity and cooperation between old rivals. **The European Economic Community** (the EEC) and **the European Atomic Energy Community** (the Euratom) were the two communities which were established by the Rome Treaties that was signed on 25 March 1957 and entered into force first of January 1958. The EEC's task, according to the Treaty, was to boost the economical growth and make economical connections between member countries even stronger. It was also mentioned in this treaty to lower and eventually get rid of duties between member countries and introducing equal duty charges between member countries and non-member countries.

Apart from the EEC that would cover the whole of trade, not just one sector like the ECSC, but the Euratom focused on a specific economic area “Peaceful Nuclear Development”. As J. Pinder indicates “ Euratom was given similar institutions to govern, like the ECSC, a particular sector of the economy: the nuclear

[29] Alter, Karen, and Steinberg David “The Theory and Reality of The European Coal And Steel Community”Available at: http://www.princeton.edu/~smeunier/AlterSteinberg%20Memo.pdf (visited on 25 April 2006).

industries in their application to peaceful purposes. It was to promote research, investment and infrastructure, to create a common market for the sector; and ensure safety and the use of nuclear matterials only for the intended purposes".[30] After the war, the USA did not want to loose its influence on the European nuclear programs. On the other hand, Euratom, especially as French hoped, would established an 'European' nuclear industry without the US involvement. Before the community became operative, the other countries who was participating in the Euratom negotiaitions, had not shared Frenchs ambitous about atom industry and doubted that the French government would exploit atomic energy only for civil projects. Conversely, De Gaule did not want an American involvement in an "European" atomic industry. However, the US promised to provide cheap uranium to Germany meant that the final agreement in 1957 was so full of loopholes (particularly in secrecy) that the organization never really had a chance.[31]

2.3. Was There a Real Common Energy Policy?

As R. Jones points out "Although the coal and nuclear industries were dealt with respectively in the ECSC and Euratom treaties, energy policy was not mentioned in the treaty of Rome".[32] At the institutioal level of the EEC were not given any certain responsibility for the other energy resources that were not covered by the two sectoral treaties. That time, between the end of the Second World War to the 1970's first oil crise, can be called as the *Golden Age* of the energy resources. Approximately 30 years, for European countries, especially for the member of the community, reaching the energy resources were very easy, particularly oil. As N.

[30] Pinder, Jhon; The Building of the European Union (Oxford : Oxford University Pres, 3rd Edit., 2000), p. 159.
[31] Usherwood, Simon; p.126.
[32] Jones, Robert A.; *The Politics and Economics of the European Union, An Introductory Text;* (United Kingdom: EdwardElgar Publishing Limited, 1996); p.214.

Mousis indicates "no clear need for a community or even national oil policy was percieved in the years when oil cheap and supply certain".[33] Plentiful energy resources and national interest on the energy sector had not allowed formation of an energy policy in the early year of the Community. Nevertheless, a "Protocol of Agreement on Energy Problems" was adopted by the six members in April 1964. With this protocal members stated their commitment to the establishment and application of a Community energy policy.[34]

At the beginning of the 1960 the three executive bodies of the communities- High Authority of the ECSC and the Commissions of the EEC and Euratom- were planned to merge as one body. However, merging of the communities executive bodies was percieved as a threat by the French politicians whose idea was to strengthen of the position of the Council of Ministers. Despite French opposition to merging of the three executive bodies The Merger Treaty signed in Brussels on 8 April 1965 and entered into force on 1 July 1967. As W.Nicoll and T. Salmon put it " the 1965 Merger Treaty merge the three Councils formally into one, and the High Authority and the two Commissions of the EEC and Euratom into one Commission. The Treaty only merged the institutions, not the Communities per se".[35] With the Treaty, formal name was Treaty Establishing a Single Council and Single Commission of the European Communities, three Communities would share a single budget. The Merger Treaty (EEC) was abrogated by the Amsterdam Treaty in 1997.

Developments related to energy sector were limited with these two events in 1960's. In addition, until the first oil crises very few measures were adopted in the oil

[33] Mousis, Nicholas; *Access to European Union Law, Economy, Policies* (Rixensart : European Study Service, 10tn revised Edit., 2001) p.448.
[34] Moussis, Nicholas. p.449.
[35] Nicoll, William and Trevor C. Salmon; Understanding European Union, (Great Britain: Henry Ling Ltd; 2001), p.15.

sector. Maintain minimum stocks of petroleum products as a security measure[36] and one on the notifying of the Commission of investment project of interest to the Community in the petroleum, natural gas and electricty sector[37] were two of the few examples.[38]

2.3.1. Transformation: From Natural Resource to Weapon

Golden age of the energy resources and comfortable positions on energy supplies of the members of the Community and the world was interrupted by the Arab countries decision which was about to stop selling of the petroleum products and natural gas resources to the countries who supported Israel in the Yom Kippur War of 1973. A couple mounths before 73's oil crises Council of the EEC adopted a Directive, urging the member states to take measures, appoint bodies and prepare intervention plans to mitigate the effects of possible supply restriction.[39] Consept of energy regain its importance and re-entered the EEC agenda through the war in the Middle East. Decision of the oil producing countries to stop importing of the oil to the countries who supported Israel in the war of Yom Kippur, quadrupled the price of oil in just a few months. The first reaction of the member countries was the restriction of oil consumption. In this paralel driving of cars was forbidden on Sundays, some measures would limit speed and so on [40]. As S. Usherwood points out "the effect on energy policy was principally to reinforce national objectives, not least because OPEC was very successful in their strategy divide and rules, making bilateral

[36] Council Directive 68/414, OJ L308, 23.12.1968 and Council Decision 98/93, OJ L358, 31.12.1998, Availableat:http://europa.eu.int/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=EN&numdoc=31968L0414&model=guichett (Visited on June 16, 2006).
[37] Council Regulation 1056/72, OJ L120, 25.05.1972 and Council Regulation 736/96, OJ L102, 25.04.1994,Availableat:http://europa.eu.int/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=EN&numdoc=31972R1056&model=guicheti. (Visited on July 16, 2006).
[38] Mousis, Nicholas; p.449.
[39] Council Directive 73/238/EEC of 24 July 1973 on measures to mitigate the effects of difficulties in the supply of crude oil and petroleum products. Available at: <http://europa.eu.int/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&1g=EN&numdoc=31973L0238&model=guicheti> (Visitd on July 19,2006).
[40] Mousis, Nicholas; pp.449-450.

agreements with the various member states"[41]. The members of the EEC were loosers of the first oil crises. On one hand the oil and gas-rich countries of the Middle East had learned how to use the energy resources as a strategical component in the international level to force their rivals. The main target of the Arab's oil embargo was, in the Community, the Netherlands but economically and politically threatened the Community as a whole.[42]

The main problems for the western countires were prices of the energy resources and their finacial yield while the importence of the shortage was diminishing. At the end of the same decade another shock wave on the energy sector emerged again in the Middle East but this time caused by one country's political condition. The revolution in Iran and Iraq invasion of this country stopped the production of oil in Iran. Another aftermath of Iraq-Iran was the run out of the operating of the oil sector in Iraq too. Despite to get international charactersitic the overall loss in production was about 4%. Meanwhile Kingdom of Saudi Arabia and other OPEC nations increased production to offset the decline. The oil prices reached the $39.50 over the next 12 months.

73 and 79 oil shock revealed the vulnerabilty of economies of the community as a whole and member countries one by one[43]. As N. Moussis indicates " this twelvefold increase in crude oil prices in the space of six years dealt a devestating blow to economies in the several region of the world including Europe. The Community member States, accustomed to trade surpluses, saw this frittered away

[41] Usherwood, Simon; p.126.
[42] Pinder, David; *The New Europe Economy, Society and Environment;*(London, Chichester : Wiley, 1998), p.80.
[43] Willenborg, Robert; Tönjes, Christoph; and Perlot, Wilbur; Europe's Oil Defences "An Analysis of Europe's Oil Supply Vulnerability and Its Emergency Oil stock Holding System, The Hauge: Clingendael Institute, 2004, Available at:< http://www.clingendael.nl/ publications/2004/2004010 0_ciep_paper_willenborg.pdf> (Visited on: June 30, 2006), p.8.

into a deficit sitiation. Recession began to bite in nearly all the European countries and gave rise to what was termed 'Euro-stagnation'".[44]

2.3.2. The Age of International Cooperation

Successful solidarity among the countries who are the hydro-carbon richest nations of the world and members of the OPEC was a sample for the western nations who have poorest natural reserves and main target of the 73's oil embergo. After a couple mounths from the 'october oil crisis' an international conference held in Washington in February 1974. Effectual divide and rule strategy of the OPEC nations urged on the US taking initiative by this international cooperation. As S. Usherwood successfully indicates "indeed, it was only through US intervention that there was any international cooperation, in the form of International Energy Agency (the IEA)".[45] The conclusion of the conference was, with OECD support, **the Agreement on an International Energy Programme** (IEP) that signed on November 18, 1974 and entered into force on January 19, 1976. The main aim of the IEP is a collective emergency response system for a major distruption in international oil supply. At the same time the IEP is the legal basis for **the International Energy Agency** (IEA) which was established on November 15, 1974 by the OECD's Council. The Role of the IEA is acting as energy advisor for its 26 member countries in their effort to reliable, affordable and clean energy for their citiziens. According to N. Moussis "its main tasks are to: draw up and implement a long term cooperation programme on the development of resources and energy savings; analyse national programme for energy conservation and the development of new energy resources; improve the information system on oil and natural gas markets; create a statistic center for energy;

[44] Moussis, N; p.450.
[45] Usherwood, Simon, p.126.

introduce a mechanism to restrict demand and share out oil resources in the event of supply difficulties. The EU Commission has observer status within the Agency and, on the one hand, coordinates the position of the EU member states, on the other, the action of the IEA with that of the EU, especially areas of the EU commercial policy".[46]

Another shape of interantional cooperation which rised after the first crise is the dialogue between Arab oil countries and consumer countries. However, these sort of initiatives have not given much fruit. The European Commission and represantatives of the **OPEC** and **OAPEC** have been meeting occasionally to discuss oil trade, statement of the international oil and energy market. Despite all benefits of the dialogue it is not enough to meet todays' requirements.

2.3.3. Revitalization: The Single European Act

In that time period between the Iranian oil crise and **the Single European Act** (SEA) of 1987 the EC found itself limited to little more than producing guidelines for national policies in matters such as security of supply and conservation. After many years in slepping, in the mid-1985, under the pressure of the economic and political conditions of the world, firstly administrative component of the EEC and then the member states started to move slightly. In order to compose and unlimited internal market into the Community a road-map was prepared. White Paper of 1985, entitled by the Commission as "Completing the Internal Market", was frammered by Lord (Francis Arthur) Cockfield in June 1985. White Paper of 1985 that contains 300 measures necessary to transform the Common Market into the Single Market[47]. As M. Calingoert puts out "in its introduction, the White Paper makes clear that it does not

[46] Moussis, N; p.450.
[47] Baldwin, Richard and Wyplosz, Charles;2006,Economics of the European Integration, (London: McGraw Hill 2nd Edit.) p.19.

purport to cover every possible issue afecting the integration of the member states' economies. Rather it focuses on measures it deems 'directly necessary to achive a single, integrated market inside the Community".[48] In the same time, Jaques Delors, who was the president of the European Commission between 1985-1994, pushed a programme that would complete the internal market.

The SEA was signed at the end of the 1985 and adopted by all member states in July 1987. As J. Pinder assess " the Single Act committed the member states to complete the internal market by the end of 1992, as an area without internal fronteries in which the free movements of goods, persons, services and capital in ensured accordence with the provisions of this treaty".[49]At the level of energy, the 1985 White Paper and the SEA contained nothing a common energy policy, because it was thought too be far to problematic to even attempt to tackle. Nevertheles, necessity of this kind of integration was apparent in terms of both the require to free up energy market to complete the internal market and the overdependence on external supplies.[50]

2.4. The Energy Charter Treaty

International climate had stared to change in mid-80s and culminated in at the beginning of the 1990s with the fall down of the Soviet Empire and the invasion of Kuwait and the First Gulf War. These two events were directly related European countries and EEC energy structures. On the one hand, the second biggest oil reserve of the world -Iraq- was closed by the war. On the other hand collapse of the Soviet Union offered new opportunities to access energy rich-former Soviet territory. Under

[48] Calingoert, Michael; THE 1992 CHALLENGE FROM EUROPE:Development of the European Community's Internal Market, (London Henry Ling Ltd; 1996), p.10.
[49] Pinder, J. P.90.
[50] Usherwood, S; p127.

these conditions members of the Community was talking about an international cooperation.

At the meeting of the European Council in Dublin in June 1990, the Prime Minister of the Netherlands suggested that cooperation in the energy sector could stimulate economic recovery in Eastern Europe and the Soviet Union and ensure security of supply to the Community. One year later, the Commission proposed the concept of a European Energy Charter. Negotiaiton on this Charter was launched in Brussels in July 1991 and culminated with the signature of a Concluding Document in the Hague on 17 December 1991.

The European Energy Charter (the EEC) lays down the principles, the objectives and ways of achieving pan-European cooperation in the field of energy would appear more promising. The EEC was signed by almost all European countries as well as by the Community, Canada, the United States, and Japan. Its interest is to give the first tangible demonstration of a concensus based upon solidarity and complemantarity, in particular between the countries of Western Europe – with their know-how and advenced technologies- and those of Central and Eastern Europe, including the countries of the Former Soviet Union, which have relatively abundant energy resources. The Charter pursues the following operational objectives: expansion of trade, especially through free market operation, free access to resources and the development of infrastructure; cooperation and coordination of energy policies; and the optimal use of energy and protection of the environment. These objectives should be attained through the implementation of joint measures by the signatory countries in the six specific priority fields: access to resources; use of resources; investment arrengements; liberalisation of trade harmonisation of technical specifications and safety rules; research and development and innovation.

Three years later, on 17 December 1994, name and structure of the Charter was changed and called as the Energy Charter Treaty. In the same day, the Energy Charter Treaty and Energy Charter Protocol on Energy Efficiency and Related Environmental Aspects were signed by all signatures of the 1991 Charter except for the US and Canada and entered in to force in 1998. All EU states are individual signatories, but the Treaty has also been signed collectively by the EU. In the same time, five countries have not ratified the Charter Treaty yet. These are Austiralia, Belarus, Iceland, Norway, and the Russian Federation (the RF). The RF ad Belarus have accepted provisional application of the Treaty, which means that-pending ratification- they have agreed to apply the Treaty to the extent that it is consistent with their own constitutions, laws and regulations.

The main target of the treaty is to establish a legal framework in order to promote long term cooperation in the energy field in accordence with the principles of the European Energy Charter[51]. The ECT is not an credit institutions and has no aim to defination of the energy policies of its members and accepts that national sovereignty on national energy resources. The ECT's most important provisions concern investment protection, trade in energy materials and products, transit and dispute settlemet. According to the Treaty the GATT rules govern the trade in energy materials and products between Contracting Parties. On the transit issue, each party must take necessary measures to facilitate the transit of energy materials and products in line with the principle of freedom of transit and without distinction as to the origin, destination or ownership of such energy materials and products or discrimination as to pricing on the basis of such distinction, and without imposing any unreasonable delays, restriction or charges. In the event of a dispute on transit

[51] The Energy Charter Treaty and Related Documents; A Legal Framework For Internatıonal Energy Cooperation Available at: <http://www.encharter.org//upload/9/120520674515751158192049714743532131935190860213f2543v3.pdf>; p.44.

methods, it is prohibited to interrupt or reduce the flow of energy matterials and products prior to the conclusion of the dispute resolution procedures provided in such cases. The Treaty provides for rigorous procedures for settling disputes, whether they arise between States or between individual investors and the State in which the investment was made. In the event of Dispute between an investor an investor and a the State, the investor may decide to submit it to an international arbitration procedure. In the event of a dispute between States, an ad hoc arbitration tribunal may be constituted if a settlement has not been reached through diplomatic chanels. The solution decided on under these arrengements are binding. The Treaty also contains provisions about competition, transparency, taxation and the environment.

2.5. Hungry for Energy: Production and Consumption

Currently demand and consumption of the Union as a whole shows that the EU is at the line which is vital for its future. As President of the European Commission Jose Manuel Barroso and Andris Piealgs, who are the commissioners responsible for the energy policy, point out "Europe is entering a new energy landscape. Gas and oil prices have nearly doubled in the last two years. Europe's import dependency is forecast to rise to 70% by 2030, as our hydrocarbon reserves dwindle and demand rises, with implications for our energy security. Our infrastructure must improve; €1 trillion is needed over the next 20 years to meet expected energy demand and replace ageing infrastructure".[52]

Two main features characterize the present-day the EU energy situation: the net growth in the oil and gas consumption over the next 15 years is expected, as is a total net decline in EU indigenous production capacity. This means that the EU over the next 15 years will have to increase its dependency on countries exporting oil and

[52] http://europe.eu.int/comm/commission_barroso/president/pdf/article_20060308_en.pdf (Visited on: 07/04/06).

natural gas. It is unrealistic to expect that alternative resources can offset the gross dependence on oil and gas in the EU, particularly if considering that any major energy project development takes at least five years to mature. Second, the energy distribution suggests a current level of only 5.9 percent of the EU's total energy consumption coming from renewable energy, including hydro. Increasing this quantity much beyond 10 percent in the next 15 years is not likely, the gas and oil lobbies in the EU will stand in the way of any rapid transition. Currently, oil and natural gas consumption accounts for more than 60 percent of the EU's total energy needs. This is a high number to reduce in the short run, particularly as national strategic and specific commercial interests are not always parallel.

0.6 percent of the world's proven oil reserves are located in the borders of the EU and 2.0 percent of world's proven natural gas reserves. The EU holds 4.0 percent of proven coal reserves, and 18.0 percent of the world's electric generating capacity. As a second biggest energy imports of the world, two-third of the EU's total energy requirements will be imported by 2020. According to Eurogas projections, the EU will import up to 75 percent of its natural gas requirements by 2020. EU member countries import oil predominately from Russia, Norway, Africa and the Middle East. In 2003, the EU consumed 73.7 quadrillion British thermal units (Btu) of energy, 17 percent of the world's total energy consumption.

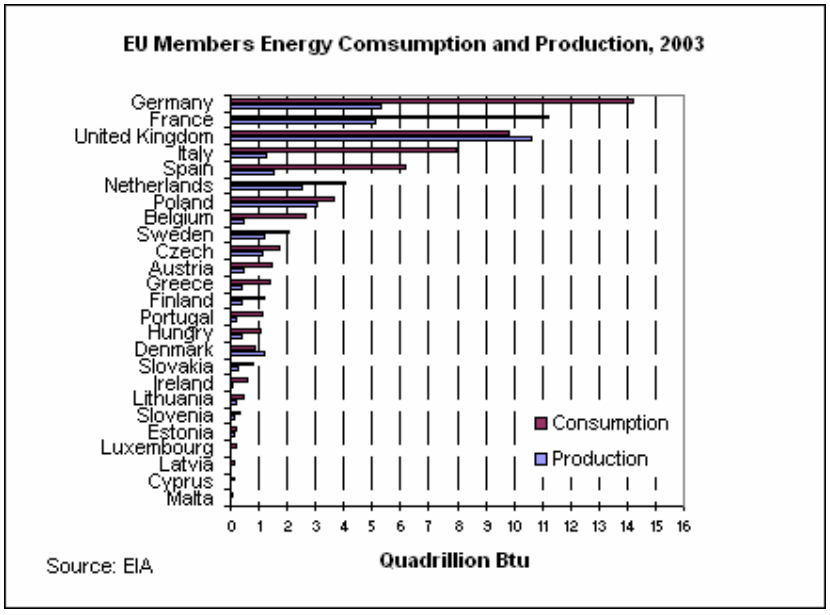

Table 1: EU Memebers Energy Consumption and Production in 2003[53]

The EU's dominant fuel in 2003 was oil, accounting for 40 percent of total EU energy consumption. Over the past decade, natural gas has been the fastest growing fuel source in the EU. In 2003, natural gas accounted for 24 percent of EU energy consumption. The increase in natural gas consumption has been mainly at the expense of coal, whose share declined from 20 percent in 1991 to 13 percent in 2003. Environmental concerns are a major reason for the decline in the use of coal, most evident in the EU's Directive 2001/80/EC[54], which seeks to limit air pollutants produced from large coal-fired combustion plants. Other factors in coal's decline include the increased availability of natural gas supplies from Russia, Norway, and Algeria by pipeline, as well as increased liquefied natural gas (LNG) imports from Nigeria.

[53] Energy Information Administration; Country Analysis Briefs-the Euroepan Union, January 2006; Official Energy Istatistic from US. Government. Available at:< http://www.eia.doe.gov/ emeu/cabs/ European_Union/pdf.pdf> (Visted on: 14.03.2006)pp.2-3.

[54] Directive 2001/80/EC of the European Parliament and of the Councilof 23 October 2001on the limitation of emissions of certain pollutants into the air from large combustion plants. Available at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32001L0080:EN:HTML. (visited on: 14.03.2006).

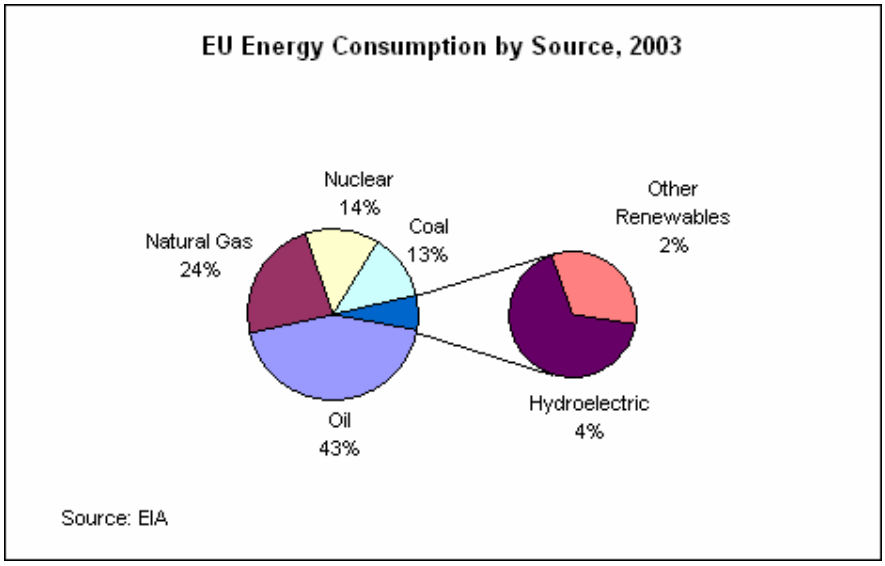

Table 2: the EU Eenergy Consumption by Source[55]

Nuclear power currently accounts for 14 percent of total EU energy consumption. A group of EU countries including Austria, Denmark, Portugal, Spain and Norway are opposed to using nuclear power in the EU as an energy source. Conversely, countries (Italy, Germany, Sweden, UK and the Netherlands) that were formerly opposed and/or had bans against using nuclear power are now rethinking and supporting nuclear development. In Sweden, those in opposition to nuclear power came out in support of it last year, although, the country did close its second nuclear react or in May 2005. The Dutch government decided to continue using its only nuclear power plant, Borssele, indefinitely. The plant had a former closure date of 2013. Belgium's new government has commissioned a new study of nuclear power in the country. Nuclear reactors currently in Belgium would not be closed until 2017 if on schedule. Finland plans to bring a new 1,600-MW reactor online by 2009, and a new French reactor is being planned. Nuclear energy is also a viable alternative, however, there is no common position on making nuclear energy the corner stone of the EU's energy security. In addition, in the light of growing level of

[55] Country Analysis Briefs-the Euroepan Union, p.2.

asymetric threats and fundementalism in Europe, nuclear reactors present a degree of additional risk, which has to be factored into the utility equation of nuclear power and into the cost-benefit analysis of adding new nuclear capacity. In 2003, hydroelectric power accounted for approximately 4 percent of total EU power consumption. Although other "renewables" (geothermal, biomass, solar, and wind) constituted only 2 percent of total EU energy consumption in 2003, wind power has made great strides over the past decade. At the end of 2004, the EU had installed wind capacity of over 34,000 MW, according to the data published by the European Wind Energy Association (EWEA). Denmark's 166-MW Nysted wind farm, the largest such development in the EU, started to produce electricity in December 2003. Wind energy is playing a critical role in EU attempts to generate 22 percent of the region's electricity from renewables and to reduce carbon emissions by 2020. EWEA expects installed wind capacity in the EU to reach 75,000 MW by 2010.

Dependency on energy imports has inreased from 40 percent of gross consumption in the 1980's to around 50 percent today. Increased globalisation and rising living standarts are likely to result in higher demand for energy, for use in freight and passenger transportation, as well as to heat homes and power household appliances.[56]

A competitve and reliable energy sector is an essential part of industrilized economy. The energy sector has been highlighted recently due to concerns over the security supply caused by instabilities in the Middle East, disputes over the pipelines for delivery, or adverse weather conditions that affect refinery output. With rapid growth in demand for fossil fuels from several developing countries, imbalances

[56] Key Figures on Europe Statıstıcal Pocket Book 2006 Data: 1995-2005; 2006; Eurostat Publications; Available at: http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-EI-06-001/EN/KS-EI-06-001-EN.PDF (Luxemborug: Office for Official Publications) (Visited on: June 24, 2006)p. 138.

arose between supply and demand, leading to pressure on prices. As oil is one of the main fuels used to generate electricity, there were also knock on effects on electricity prices. Some protection against such price increase can be achived through diversification, particularly for electricity generation, for example from renewable energy sourcesor nuclear power, chancing the product mix to avoid relience on any one type of energy or any single country as a supplier.[57]

Electricty and gas tariffs vary form one supplier to another. They may be result of negotiated contracts, especially for large industrial consumers. For smaller consumers they are generaly set according to the amount of electricity or gas consumed, and a number of other chracteristics that vary from one country to another. Tariffs also generaly includes fixed charges. Therefor there is no single price for electricity or gas in any EU country.

Environmental aspects of the consumption of the energy resources is essential for the Union's energy future as well as world. The main extarnality associated with energy consumption is environmental. Indeed, energy consumption accounts for nearly 95 percent of man-made carbon dioxide (CO2) emissions.

[57] Key Figures on Europe Statıstıcal Pocket Book 2006; p.142.

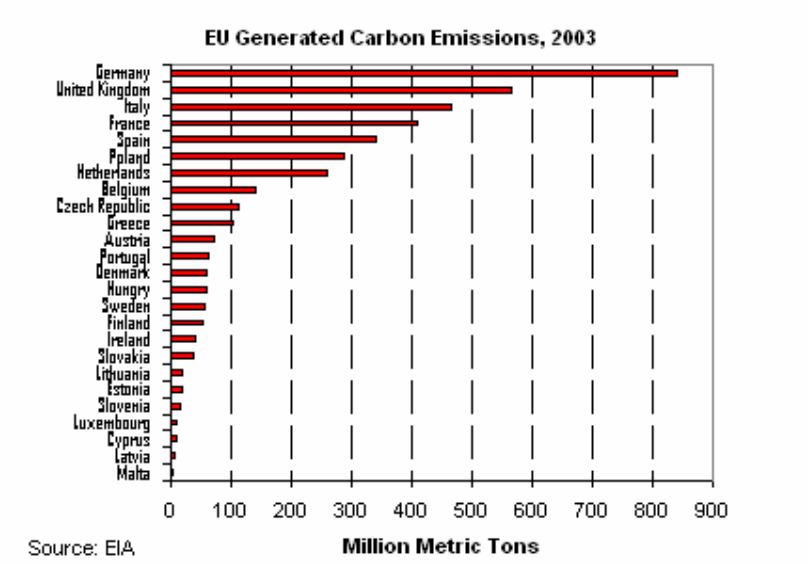

Table 3: EU Generated Carbon Emissions, 2003.[58]

Under the 1997 Kyoto Protocol, the EU is obligated to reduce its greenhouse gas emissions 8 percent from 1990 levels by 2008-2012. All members of the EU-15, countries which were in the EU prior to May 2004, signed the Kyoto Protocol on April 29, 1998 and subsequently ratified it on May 31, 2002. In 2003, EU members generated 4,048 million metric tons (Mmt) of energy-related carbon dioxide emissions, 16 percent of the world total. Germany emitted the most carbon dioxide (842 Mmt) of the EU countries, followed by the United Kingdom (565 Mmt), Italy (465 Mmt) and France (409 Mmt). In October 2003, the EU Parliament and Council issued Directive 2003/87/EC[59], establishing an emissions trading scheme which became operational in January 2005. According to the Directive, no installation undertaking activities are permitted to emit CO2 unless the operator of the facility holds a permit from its government. Under the Directive, member state governments allocate annual emission allowances to companies, which have to meet their

[58] Country Analysis Briefs-the Euroepan Union, p.4.
[59] Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC; Available at: http://eur-lex.europa.eu/LexUriServ/ LexUriServ.do?uri=CELEX:32003L0087:EN:HTML. (Visited on: 14.03.2006).

allowance by either reducing CO2 emissions or acquiring emission rights from other companies. If a company emits less than its quota, it can either sell the remainder or save them for future use. Members of the EU-15 were required to submit plans to the European Commission containing a list of installations and proposed allocations for each site. New members as of May 2004 were required to submit plans with their accession. The Euroepean Comission has been reviewing the progress of the emission trading plan since January 2005 and plans to release a report during 2006. Specifically, the Commission's report will focus on how the plan affects the EU's international competition, how it impacts electricity prices in the EU and the possibility of extending the plan to include additional greenhouse gases listed in Annex II. Under Article 30 (3), the EU Parliament Directive could eventually allow companies to achieve reductions through emissions-reducing projects carried out anywhere in the world, as long as those reductions can be verified under the Kyoto Protocol's Joint Implementation and/or Clean Development Mechanism. The reductions could then be converted into allowances and traded within the EU. Phase I, which the EU considers a "warm-up" phase, began in 2005 and will run until 2007. The second phase will run from 2008 to 2012, corresponding with the first Kyoto commitment period. The EU anticipates that the program will be run in five-year phases after 2012 as well.[60]

[60] Key Figures on Europe Statistical Pocket Book 2006, p.143.

European Union Production and Consumption of Energy				
Countries	**Oil Production, Thousand bbl/d, 2005**	**Oil Consumption, Thousand bbl/d, 2005**	**Natural Gas Production, Tcf, 2003**	**Natural Gas Consumption, Tcf, 2003**
Austria	17	290	0.07	0.32
Belgium	0	633	0	0.55
Cyprus	0	54	0	0
CzechRepublic	12	206	0.01	0.34
Denmark	378	184	0.28	0.18
Estonia	0	19	0	0.05
Finland	0	221	0	0.18
France	73	1,971	0.06	1.55
Germany	172	2,636	0.78	3.32
Greece	5	428	0	0.09
Hungary	45	129	0.1	0.52
Ireland	0	187	0.02	0.15
Italy	155	1,831	0.48	2.72
Latvia	0	25	0	0.06
Lithuania	13	96	0	0.11
Luxembourg	0	65	0	0.04
Malta	0	18	0	0
Netherlands	87	1,069	2.58	1.78
Poland	34	447	0.2	0.53
Portugal	8	360	0	0.11
Slovakia	11	71	0.01	0.25
Slovenia	0	51	0	0.04
Spain	21	1,614	0.01	0.82
Sweden	2	365	0	0.04
United Kingdom	1,882	1,822	3.63	3.36
European Union	2,911	14,738	8.22	17.07

European Union Production and Consumption of Energy

Countries	Coal Production Mmst, 2003	Coal Consumption, Mmst, 2003	Electricity Generation, Billion Kilowatthours, 2003	Electricity Consumption, Billion Kilowatthours, 2003
Austria	1.3	6.6	55.8	57.5
Belgium	0.2	9.7	78.8	80.0
Cyprus	0	0.1	3.8	3.5
CzechRepublic	70.4	65.3	78.2	56.5
Denmark	0	10.4	43.3	31.7
Estonia	16.2	16.7	9.0	7.0
Finland	0	6.2	79.6	78.9
France	1.9	21.4	536.9	433.3
Germany	229.1	273.1	558.1	510.4
Greece	75.3	76.0	54.6	52.8
Hungary	14.5	16.2	32.2	37.0
Ireland	0	2.8	23.4	23.0
Italy	0	24.2	270.1	302.2
Latvia	0	0.1	3.6	5.8
Lithuania	0	0.3	18.6	9.1
Luxembourg	0	0.1	2.8	6.1
Malta	0	0	2.1	2.0
Netherlands	0	15.7	91.0	101.6
Poland	177.8	152.6	141.3	121.3
Portugal	0	5.9	44.3	44.0
Slovakia	3.4	10.0	29.7	25.2
Slovenia	5.4	6.0	13.2	12.5
Spain	22.7	45.6	247.3	231.2
Sweden	0	3.8	127.9	131.8
United	30.6	68.8	369.9	346.1

Kingdom				
European Union Total	648.8	837.7	2911.6	2706.7

Table 4: EU production and Consumption of Energy by Countries[61]

2.6. The Russia-EU Energy Dialogue

Energy now occupies a cenral place not only in the regional context but also in global strategies. Three major reasons are behind this situation. Firstly, requirement for energy resources is rising expotentially as population increase, economies grow, and industrial and personal consumption is steadily increasing. Secondly, in geopolitical terms, energy is scarce resources. It means that, the major location of energy resources, particulaly oil and gas, are limited. The last reason is competition that has pushed many countries into dependency relationship or reinforced their dependence on specific energy suppliers, thus exposing them to potential political pressure and destabilizing economic vulnerabilities.[62] The today's energy pictures of the EU resembles with this condition, demand is growing in Europe while its population is increasing, especially with the last enlargement, economy is growing, and regional oil and natural gas resources is getting run out. It means that Europe's dependence on foreing suppliers is going to increase.

The EU, today, is a net importer and the second biggest consumer of the world on this area. Its global position as a big player belongs to energy sources which import from the outside of the region and the import level of the community is rising

[61] Country Analysis Briefs-the Euroepan Union, pp.6-7.
[62] Bugajski, Janusz; " Energy Policies and Strategies: Russia's Threat to Europe's Energy Security", *Insight Turkey*, (Vol. 8, No. 1, 2006), p.141.

while indigenous sources is exhausting. In order to meet its demands the EU need to diversfy its energy supplies. The political unstable conditions of the energy rich regions increase the vulnerabilty of the countries who have not more than one options to meet its demand on energy sector.

The Russian Federation is the biggest neighbour of the Community and also the one of the biggest economic partner. Today, Russia is Europe's the single most important external supplier. Currently, oil (32.5%) and natural gas (30.9%) gas consumption accounts for more than 60% of the EU's total energy needs[63]. In the meanwhile, Russia provides nearly half of Europe's natural gas and third of its oil. This dependency is more higher in the eastern part of the Union. The Central-Eastern European (CEE) states have much higher level of dependency than the Western European countries, on a specific single source, Russia, for their oil and gas supplies. Dependency of eastern part of the Community reached 72% while western's 41%. On the other hand, sales of raw materials to the EU provide most of Russia's foreign currency and contribute to over 40% of the Russian federal budget. The EU is Russia´s main economic partner. Bilateral trade amounted to 96,55 billion euro in 2004. Over 60% of Russia´s export revenue comes from energy, and most of it is in the form of exports to the EU. So Russia is as dependent on the EU as the EU is on Russia.[64].The EU and Russia are energy dependent in different ways: The EU needs to import increasing quantities of energy and Russia needs markets for its natural resources and European capital to modernize and expand its energy sector. The EU is going to be dependent on Russia for up to 80% of its gas supplies when the new pipeline under the Baltic Sea is finished and other routes are completed. As J.Bugajski points out " at present 45% of Russia's energy exports reach the EU

[63] Grgic, Borut; "Russian Energy Strategie; Risk Assessment for Europe", *Insight Turkey*, (Vol. 8, No. 1, 2006), p. 150.
[64] Grgic, Borut; pp. 150-151.

countries, including 53% of oil and 36% of natural gas. Over 20% of the EU's net oil imports are from Russia, as well as over 40% of the EU gas imports. This proportion will steadily rise as Russia increases its own exports and gains a monopoly over the export and transport of Central Asian enegy resouces to Europe. There are projections that by the year 2030, the EU's external energy dependency will reach 70%".[65] Apart form the trends in fossil fuels, Russia is playing major role in the nucler sectors of the EU by trade between new members of the Community and Russia. Trade relations in the area of nuclear materials between Russia and the new member states are estimated to be worth more than 180 million euro per year to Russia, and correspond to 80% of the market in the new member states. In addition, the Russian government is trying to buy nuclear companies in Hungary and the Czech Republic.[66]

The strategic Energy partnership under the name of the EU-Russian Energy Dialogue was launched by the Joint Declaration of the October 2000 EU-Russia Summited recognized this potential mutual dependency by announcing the decision: to institute, on regular basis, on Energy Dialogue which will enable progress to be made in the definition of an EU-Russia energy partnership and arrangements for it. This will provide an opportunity to rise all the questions of common interests relating to the sector, including the introduction of cooperation on energy saving, rationalisation of production and transport infrastructres, European investment possibilities and relations between producers and counsumers countries.[67]

Another crucial step to establish and improve the relationship between the EU and Russia on the energy sector is the Energy Charter Treaty that is a more legalistic

[65] Bugajski, Janusz; p. 142.
[66] Bugajski, Janusz; p. 146.
[67] Mahan, Amy (ed.) , 2004, "Natural Gas Supply for the EU in the Short to Medium Terms", working paper, The Hague: The Clingendeal Institute, Available at: <http://www.clingendeal.nl/ publications/ 2004/20040300_ciep_paper.pdf> (Visited on: July 13, 2004) p.15.

and earlier attempt to forge European-Russian energy partnership than the Energy Dialogue. The ECT was conceived in the early 1990s with Russia very much in mind and aimed to provide certainty and protection for energy trade, transit and investment. However, Russia has signed but not ratified the treaty. At its core, the ECT reflects the principle of comperative advantage whereby substantial economics gains are obtained through trade between energy-poor but technology/capital-rich Western Europe and the energy-rich but technology/capital-constrained economies of Russia and other former Soviet Republics. The ECT was intended to offer inward investors an assurance, supported by international law, that host countries would honour commitments made to investors. Energy producers, for their part, gain access to export markets, technologies and know-how and consumers are ensured security of energy supply in competitive and efficient markets. The last bridge between EU-Russia energy dialogue is the Kyoto Protocol which was approved by Duma in October 2004 and became operative in February 2005.

At this point the strategies of two sides become more important. In the Russian side who defined it self as "Energy Superpower" and use this power to restore its old influence, firstly on the former Soviet territory, then its neighbours and to establish its strategic global alliences that can help project Russian power and undermine the unipolar system. In energy sector, Russia seeks to establish a monopolistic position. Especially, to regain its influence over the its neighbours by using energy resources as a weapon. In the first days of the 2006 this aim of the Russian was appeared in the "Gas war between Russian and Ukraine". Energy is viewed as a key resource in restoring Russian global power. As J. Bugajski asserts "as the state has gained control over the major oil and gas componies and fully regulates the fuel sector,

energy has become a tool of state policy"[68]. On the other hand, Russia is still dependent on transit countires for its supplies to reach the Western Europe. The last distruption derived from conflict between Russia and Ukraine damaged Russian reliability as a dependable source and awake and alert the European states. The last pipeline conflict indicates that some realities to both side. The European, particularly eastern part of the continent who are more vulnerable than the western neighbours, started to seeking new and alternative sources of energy. Meanwhile , Russia is also seeking to diversify by creating alternative ways for its gas and oil. [69]

In sum, from the point of view of the European perspective Russia can be alternative of the Middle East supplies. But lack of the effective energy policy, Russia has, jeopardize its political and economic securtiy. Moreover; the EU has not considered energy and security of supply as a high priority or energy itself as a strategic weapon.

2.7. The Energy Policy for European Union In the Supply Security Context

In the Community, requirement of common energy policy, which would be a comprehensive, detailed and contained common interests of the all sides of European society from goverments to big consumers or ordinary citizens, became clear and process of evolution on energy sector was accelareted when the SEA entered into force and became operating.[70]

Three main objectives are determined for the creation a common energy policy. First of all, the EU aims to increase competition in the European energy market,

[68] Bugajski, Janusz; p.144.
[69] Managhan, Andrew, And Montanaro-Jankouski, Lucia, 2006, "EU-Russia Energy Relations: the Need for achive engagement", Issue Paper, No. 45. European Policy Center, Available at: <http://www.theepc.be /TEWN/pdf/89495137EPC%20Issue%20Paper%2045%20EU-Russia%20energy%20relations.pdf> (Visited on: April 15, 2006), p.9.
[70] Egenhofer, Chiristian; 2001, "European Energy Policy, Turning Point- an independent Rewiew of UK EnergyPolicy, Working Paper, Available at: <http://www.british-energy.co.uk/documents/ Turning_Point_-_European_energy_policy.pdf>, (Visited on: March 02, 2006), p.2.

through measures such as creation of open and competitive European gas and electricity market. A second important objective for the EU's energy policy is to enchance energy supply security. With the EU is heavily dependent on imports for its energy needs, and with this expect to remain, the case for years to come, the EU is attemting to diversify its supply sources, both in terms of energy type, (renewable energy sources) as well as in terms of external supply sources (new agreements and projects with the Caspian and North African countries for natural gas). Third and final target of the EU's energy policy is environmental protection. Environmental aspects of the EU's energy policy includes adoption of policies to enhance energy efficiency in all areas, switch from "dirty" fuel sources (oil and especially coal) to "cleaner" ones (renewable sources, safety nuclear technologies or at least natural gas), and to reduce greenhouse gas emmision.

Also, the European Commission presented a Green Paper on "a European strategy for sustainable, competitive and secure energy. This study determined the six priority areas as follow[71]:

- Completing the internal European electricity and gas markets.
- Solidarity between the member states.
- More sustainable efficient and diverse energy mix
- An integrated approach to tackling climate change
- A strategic European energy technology plan
- A coherent external energy policy

[71] European Commission Green Paper "A European Strategy for Sustainable, Competitive and Secure Energy; Brussels 08.03.2006. Available at: http://ec.europa.eu/energy/greenpaper%20energy/doc/2006_03_08_gp_document_en.pdf. (Visited on: April 12, 2006).

2.7.1. Competition and Internal Market

A competitive energy market helps efficient energy use. In the past, national gas and electricity markets were separate 'islands' within the EU, where supply and distribution were in the hands of monopolies. Now, markets have been opened up to competition and national borders in energy markets are disappearing.

The EU facilitates competition with funding to connect isolated networks and improve cross-border interconnections, both within the EU and with supplier countries. For their part, all suppliers have guarantees under single energy market rules that they can have an access to the distribution grid and pipeline networks of other EU countries, and that access charges will be fair. All businesses and many consumers are already free to choose their own supplier of gas and electricity. All other consumers will be by mid-2007,too. The additional competition comes with additional protection. There are safeguards to protect consumers against going out their rights or going cold their heatıng. These ensure that cost-cutting by competing suppliers does not result in under-investment, that consumers in remote areas or on low incomes are not regarded as too small or too far away to bother about, and that there will always be someone to step in immediately if a supplier goes out of business.

First of all, constitution of a trully competitive electricity and gas market are able to bring down prices, improve security of supply and boost competitiveness. It can also help the environment. The liberalisation of the electricity sector has created a new competitive environment in which the power generation business is fully open to competition and already millions of industrial and household consumers are entitled to freely choose their power supplier. Some 70% of all consumers in the European Union currently now have this right of choice. The adoption in June 2003

of a new EU "liberalisation package" – including Electricity Directive 2003/54/EC[72] and Gas Directive 2003/55/EC[73] - will result in full liberalisation of the internal EU electricity and gas market. Since 1st July 2004, all non-household users (industrial, commercial and professional customers) have been free to choose their supplier and all households across the EU will obtain this right at the latest on 1st July 2007. But, many market in Europe still remain largely national and are dominated by few companies.[74] Many differences remain between Member States' approaches to market operating, preventing the development of a trully competitive European market including powers of regulation, level of independence of network operators from competitive activities, grid rules, balancing and gas storage regimes. According to Commissions Green Paper, by the end of 2006, the second electricity and gas directives will have been implemented by all Member States and the Commission will have completedits competition inquiry into the functioning of the European gas and electricity markets.[75]

In additon, an internal energy market helps security of supply by sending the right investment signals to industry participants. In order to reach this aim, the Commission is planning to establish an European Energy Supply Observatory to monitor demand and supply patterns on EU energy market. Improving the network

[72] Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in electricity and repealing Directive 96/92/EC - Statements made with regard to decommissioning and waste management activities; Available at: <http://eur-lex. europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32003L0054:EN:HTML> (Visited on:14.09.2005).
[73] Directive 2003/55/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in natural gas and repealing Directive 98/30/EC (OJ L 176 of 15.7.2003); Available at:< http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri= CELEX: 3200 3 L 0055R(02):EN:HTML> (Visited on 19.09.2005).
[74] Durrand, Guillaume; Gas and Electricity in Europe: the Elusive Common Interests; European Policy Center Publication; May 2006. Available at: http://www.theepc.be/TEWN/pdf/602431509_ energy% 20policy%20brief.pdf (Visited on: 03.06.2006).
[75] European Commission Green Paper "A European Strategy for Sustainable, Competitive and Secure Energy; Brussels 08.03.2006. Available at: http://ec.europa.eu/energy/green-paper energy/doc/2006_ 03_08_gp_document_en.pdf. (Visited on 12. 04. 2006).

security and establishment of a new and more comprehensive emergency oil and gas stocks are also another important component of the internal energy market structure.

2.7.2. Environmental Aspects of the Energy Policy

Second pillar of the EU's energy policy is related to the environment. Environmental aspect of the energy policy was strengthened thanks to Amsterdam Treaty and the Kyoto Protocol.[76] In order to limit the forthcoming rise of global temperatures at the agreed target of maximum of 2 degrees above pre-industrial levels, global greenhouse gas emissions should peak no later than 2025, and then be reduced by at least 15%, but perhaps as much as 50% compared to 1990 levels. This huge challenge means that Europe must act now, in particular on energy efficiency and renewable energy. The EU must become a low-carbon economy by using less fossil fuel in industry, transport and the home, and making use of renewable energy sources to generate electricity, heat or cool buildings, and fuel transport, particularly cars. This presupposes an ambitious switch to wind (particularly offshore wind), biomass, hydro and solar power and bio-fuels from organic matter. The following step may be to become a hydrogen-based economy.

In order to cut fossil fuel use, the EU is committed to obtain 15% of its energy from renewables by 2015. Member states have also undertaken to save 1% of their final energy consumption each year for nine years from 2007 by expanding the use of energy-efficient and cost-effective lighting, heating, hot water, ventilation and

[76]De Bendern, Samantha, and Cameron, Fraser, 2004, " Prospects for EU Russia Relations", <EPC Issue Paper No.19, Available at: http://www.theepc.be/ TEWN/pdf/ 365558482_EPC%20Issue%20 Paper%2019%20Prospects%20for%20EU%20Russia%20Relations.pdf>, (Visited on: January 21, 2006) p.9.

transportation. The EU has set a target of 8% for biofuels of total energy consumption by 2015.

Technology will play a key role in using energy more economically. The EU's framework programmes for research and technological development are to fund energy research, and the EU's Intelligent Energy Executive Agency is spending EUR 200 million from its Intelligent Energy for Europe programme between 2003 and 2006 to support research into energy saving, energy efficiency, renewable energies and the energy-related aspects of transport in the EU, Bulgaria, Croatia and Romania.

2.7.3. Supply Security Dimension of the Energy Policy

Europe relies upon imported energy, and the degree of this reliance will increase in coming decades. Internal (primarily North Sea) production of liquid fuels will decline, and production of natural gas will reach a plateau so that incremental hydrocarbon requirements will necessarily come from external sources. This trend of rising energy imports has important security implications. Some 60 percent of the energy the EU consumes comes from fossil fuels - oil, natural gas and coal. A significant and increasing proportion of this comes from outside the EU. Dependence on imported oil and gas, which is currently 50 per cent, could rise to 70 per cent by 2030. This will increase the EU's vulnerability to supply cuts or higher prices resulting from international crises. The EU also needs to burn less fossil fuel in order to reverse global warming. Long-term security of supply also means not being over-dependent on a few countries for supplies, or compensating for that dependence by close cooperation, with countries such as Russia (a major source of fossil fuels and potentially of electricity), and with the countries of the Hazar Region. Cooperation

with developing or emerging economies includes investment and transfer of know-how in production and transport in the interests of both sides.

2.7.3.1. Energy Supply Security and External Relations

From the beginning of the twenty-first century the world has changed fundamentally in energy terms. Prices of fossil fuels –oil and natural gas- have been rising and tripled the level of 2000. demand of this sources exploded thanks to enlargement in the economies of the China and India as well as the other developing countries. Moreover, unstable conditions of the Middle East is also another factor behind the sky-high oil prices. On the other hand, internal production level of the EU is reducing while its demand of oil and natural gas is increasingly growing.

For securing energy supply security, strenthening energy dialogue between consumers and producers is necessary. For this purpose, the EU is establishing and promoting its energy dialogue with producing and transit countries by signing legal and technical agreements establishing free trade areas in these regions; upgrading existing infrastructure and establishing new oil and gas pipelines and electricity networks that diversify supplies' routes. [77]

Dialogue with the Gulf Region: Despite the fact that the Middle East possesses 60 percent of the world proven oil reserves, political unstabilities heavily damaged the countries of the region. The EU has deep energy dialogue because the regions oil and natural gas reserves which have supplied the energy market of Europe for a long time. The energy dialogue between the Gulf Co-operation Council (the GCC) that includes Saudi Arabia, Kuwait, Bahrain, Quatar, United Arab Emirates and Oman, launched with the cooperation agreement of 1989. The main objectives of

[77] "Study on Energy Supply Security and Geopolitics; 2004, Working Paper, The Hague: The Clingendal Institute, Available at: <http://www.clingendeal.nl/publications/2004/ 20040100_ciep_ study_pdf>, (Visited on: June 27, 2006), p.111.

the agreement are to contribute to strength stability in a region of strategic importence and to facilitate political and economic relations.

In order to guarantee for stability the energy supplies, the EU supported the free trade area and Customs Union between the GCC countries and achived this aim when the Customs Union of the GCC was established in 2003. Furthermore, EUROGULF project was launched to create a new phase in energy dialogue.

Dialogue with Iran and Iraq: Iran and Iraq are naturally energy partners of the EU due to their huge natural gas and oil potential. However, relation with these countries, nowadays, is focusing on politcally than economic ones because of the war on Iraq and nuclear talks with Iran.

For a long time, the EU and Iran have been important trade partners. Moreover, reform requirements of the Iran's economy creates opportunuties fo the EU to make investments and establish cooperation in the energy field. Currently, the EU is Iran's main training partner concerning both export and import, and the largest part of this relation consist of energy trade. For cooperation, the first attempt is the esteblishment of the EU-Iran energy working group in 1999. The other development was that the EU opened an Energy Cooperation Center in 2002 in Tehran, which provides a forum for sharing ideas and information on energy technologies and identifies prior projects of the parties. Moreover, since 2002, negotiations for establishing Iran-EU Trade Cooperation Agreement have been going on.

Dialogue with North Africa Countries: North African countries's geographical proximity to European continent and natural resources of this region reshaped the relationship between the EU and the Northern African states. The

dialogue with North Africa has been in focus since 1995. The EU-MED Forum of 1997 aimed to ensure energy supplies of the EU establish an energy free trade area within the Mediterranean Sea region. The Forum sugessted establishing an energy market around the Maghreb via the gas and electricity networks. Especially, France, Italy, Spain and Portugal are depended on the energy supplies of North Africa due to the fact that North Africa has potential to meet their demands and they are geographically close the region. Among Northern African countries, Algeria is a main supplier of the EU, meeting 65% of its LNG. And its nearly 75% of its crude oil exports go to the Western Europe countries: the main consumer is Italy that respectively followed by the Germany, France, the Netherlands, Spain and the UK. In this framework, MEDGAS – between Algeria-Spain and GALSI – between Algeria-Italy have been emphasized, and both projects are parts of Trans EU-MED pipelines systems. For the electricity, to establish a Maghrebian electricity market, Algeria, Tunisia and Morocco have taken some inititatives, which is aimed to enter into the internal electricity market of the Union for the future. As a result, the energy dialogue between two parts will be going on in the long term and is an important step towards establishing an energy partnership.

2.7.3.2. International Programs to Guarantee Supply Security

After the demise of the Soviet Bloc, the EU has lauched numerous international program aimed at promoting cooperation with the Former Soviet Republics and Russia including energy dialogue and protecting investment in their markets covery energy sectors.

TACIS: Technical Aid to the Commonwealth of Independent States program was launched in 1991 to technical assitance to 12 countries of Eastern Europe and Central Asia states (Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan,

Moldova, Russia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan) The 2000 Regulation concentrates Tacis activities on fewer areas of cooperation:

- Support for institutional, legal and administrative reform;
- Support to the private sector and assistance for economic development;
- Support in addressing the social consequences of transition;
- Development of infrastructure networks;
- Promotion of environmental protection and management of natural resources;
- Development of the rural economy;
- Support for nuclear safety, where applicable.

TRACECA: The Transport Corridor Europe-Caucasus-Asia's (TRACECA) main objectives are to support the political and economic development in Black Sea Region, Caucasus and Central Asia by means of improvement of the international transport. It was launched in 1993 and is covering energy products. Currently, TRACECA has thirteen participant which are Azerbaijan, Armenia, Georgia, Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan and Turkmenistan and since 2000 Turkey, Romainia and Bulgaria are the members of it.

INOGATE: Interstate Oil and GasTransport to Europe (INOGATE) is a program ,which was founded by TACIS, was launched for promoting the regional integration of the pipeline systems and facilitating the transport of oil and gas both within the greater NIS region and towards the export markets of Europe, while at the same time acting as a catalyst for attracting private investors and international financial institutions to these pipeline projects. INOGATE supports the security of supply of both the EU and the INOGATE Participating Countries by:

- Enhancing the safety and security of the existing hydrocarbon network

- Facilitating the extension of the network to reduce bottlenecks and enhance supplies
- Attracting and facilitating the necessary investments
- Acting to improve the investment climate
- Supporting the convergence of the regulatory framework and normative standards of Participating Countries towards those existing in the EU.

SYNERGY: SYNERGY a programme of the EU, finances international co-operation projects with third countries (maximum of 100%) to help define, formulate, implement their energy policy in fields of mutual interest. It also finances projects promoting industrial co-operation between the European Union and third countries in the energy sector. The eligible projects must contribute to accomplishing the objectives of EU's energy policy: overall competitiveness, security of supply and protection of the environment. Eligible Countries Projects in all developing countries are eligible, but a priority is given to the following geographical areas: Central and Eastern Europe, the Newly Independent States, the Mediterranean countries, Latin America, Asia and Africa. Each year Synergy strategy identifies specific countries or regions which are agreed as priority areas for that year. Beneficiaries SYNERGY aims at facilitating and improving co-ordination with the actions and initiatives of the EU Member States, as well as with other international organisations in the field of energy co-operation.

- Advice and training in energy policy
- Analysis and forecasting in energy matters

- Closer dialogue and exchanges of information on energy policy, notably through the of organisation of conferences and seminars
- Support to regional transboundary co-operation
- Improving the framework for industrial energy co-operation

The EU, Bulgaria, Romania, and seven countries of southeast Europe have set up a single Energy Community across the 34 countries, so that in due course energy market rules will be the same across the whole zone.

The EU will benefit in particular from greater security for the supply of gas and power transiting these countries. The non-EU countries' energy markets will operate more efficiently by applying EU rules and their consumers will benefit from more competitive markets and the targeting of subsidies where they are most needed.

CHAPTER III

A NEW SCENE FOR ENERGY GIANT: THE CASPIAN REGION

3.1. Background of the Region's Energy History

Since the 19th and 20th centruies, the Caspian natural resources, especially oil, has played vital role not only in region but also in the world politics and economics, frequently the source of contention between external superpowers. In the 19th century Great Game had been based on competition for wider power and influenced by asserting control over the Caspian and Central Asia regions.[78] On the other hand, strategic importance of the regions oil reserves had not been realized and was wating for technological development for exploiting and extracting. Until the beginning of the 20th centruy oil emerged as a pivotal factor in the competition, and game intensified.[79] Indeed, natural wealth of the region was not really discovered or exploited on a large scale until the mid-20th century.

In order to capture region's natural reserves of two sides had been made a big effort in both WW I and in WW II. The aim of the victory was to acquire the control of rich oil bed. During the WW I, The Germans having exhausted their own fuel supplies, tried to size oil in Baku region to feed the continuing war effort. In the WW II, Hitler seemed to have been determined to use Caucasian oil to fuel his military expansion and after the conclusion of the 1939 Nazi-Soviet Pact, Soviet oil from the Caucasus provided no less than one-third of Germany's imports. In 1941 Hitler lauched a series of campaigns to take outright possession of the region and its mineral reserves. These campaigns reached the top in 1942 when Hitler stressed that

[78] Great Game: A 19th century rivalry between Victorian England and Tasrist Russia in the Caucasus and the Central Asia. See Foresythe, Rosemary;The Politics of Oil in the Caucasus and Central Asia; New York; Oxford Uni. Press; 1996; page 9.
[79] Foresythe, Rosemary;The Politics of Oil in the Caucasus and Central Asia; New York; Oxford Uni. Press; 1996; page 9.

if Germany failed to gain control over the oil in Caucasus, Germany would be forced to end the war[80]

From the period between mid-19th to nowadays; Russia, Turkey and the rest of the modern world have been engaged in intense competition for influence over the region. While the Caucasus Region and the Central Asian states are strong from the point of view of natural resources potential, they are, on the other hand, afflicted by infrastructual weakness leading to slow economic growth and a degree of international vulnerability.[81] In addition to this, in the region there are some problems such as the Caspian Sea distribution, the uncertainty of the region's stability and the uncertainty in the current export routes.[82]

3.2. Countries of the Region

Huge oil natural gas reserves make the Caspian Sea basin important region for the world market. Energy resources of the region are intensified mainly in the Caspian Sea Basin, Azerbaijan, Turkmenistan, Kazakhstan, Russia and Iran. In meanwhile, other countries of the region Georgia and Armenia, whose natural sources are relatively poor, also play a role in energy export matters. The Caspian Region has one of the largest and untouched reserves of oil in the world. Proven oil reserves of the region's are estimated at roughly 17-44 billion barrels. In addition, the natural gas reserves of the region are estimated that proven and possible reserves up to 230 trillion cubic meters.[83]

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[80] Foresythe, Rosemary; pp. 9-10.
[81] Sander, Hansen, 2003, "Pipeline Politics; The Strugle for Control of the Eurasian Energy Resources", Tha Hague: The Clingendal Institute, Available at: <http://www.clingendeal.nl/publi cations/2003/20030400_ciep_paper.pdf>, (Visited on: June 27, 2006), p.9.
[82] Gökay, Bülent; Caspian Uncertainties: Regional Rivalries and Pipelines; Journal of International Affairs- March-May 1998.
[83] Energy Information Administration; May 2006,Country Analysis Briefs-the Caspian Sea Region, September 2005, Official Energy Istatistic from US.Government; Availeble at: http://www. eia. doe. gov/ emeu/ cabs/Caspian/pdf.pdf, (Visited on: 17.05.2006), pp.2-3.

3.2.1. The Newly Independent States

The countries in the Caspian Sea region are already major energy producers, and their production capacities is going to rise thanks to additional investments, technology, and the developmet of the new exports outlets. The Caspian Sea is 700 miles and divided six hydrocarbon basins. Most of the oil and gas reserves in the region are not developed and many areas of the Caspian Basin remain unexploited. Most of Azerbaijan's oil reserves are located of shore and probably 30-40 percent of the total oil resources of Kazakhstan and Turkmenistan are offshore as well. Possible oil reserves of the region, as a whole, are estimated at 200 billion barrels. Natural gas reserves are even larger, accounting for almost 2/3 of the hydrocarbon reserves in the Caspian Sea region. Regional proven natural gas reserves are estimeted at 232 trillion cubic meters, comparable to those in Saudi Arabia. However, these reserves are located far from potential markets and the relatively remote Turkmenistan, Kazakhstan and Uzbekistan. The distance from potential markets and the relative lack of infrastructure to export this gas have tempered interest in the regions gas potentials. Rich oil and gas reserves lie under and aroud the Caspian Sea, oil mostly in Kazakhstan, and Azerbaijan, and gas in Turkmenistan.

3.2.1.1. Azerbaijan

Azerbaijan has attracted significant international interest in its substantial oil and gas reserves since it became independent in 1991. Azerbaijan's significant offshore oil and gas reserves remain the focus of reform, with particular efforts to attract the western investment and technology necessary for the energy industry's development. Geographically, Azerbaijan stands on the border of Europe and Asia, sharing common borders with Russia, Georgia, Armenia and Iran. In the east, Azerbaijan

borders the Caspian Sea. Nakchevan Autonomous Republic is a part of Azerbaijan but it is seperated from the motherland. Because of its geographical position, Azerbaijan has a deep history and a complex ethnic structure.

In 1891 an oil pipeline was built connecting the Balak hain oil fields with the oil refinery in Baku. By the end of the 1898 there were 230 km of pipes with an annual thourghput of one million tones of oil. During the 1896-1906, the Baku-Batum oil pipeline was laid out and this was only 833 kilometers long.[84] Towards the end of the 19th century, Baku became the center of attention as far as the world's industrial capital investment.. In 1870-1880 the famous Nobel brothers and Rostchileds financed Baku's oil industry and in 1890, the Rostchield received 42 percent at the export of Baku oil. The famous Shell Company and Nobels played also an equal role as far as Baku oil industry was concerned.[85]

Baku oil was the main oil provider of Imperial Russia. Without it, Russian industry would have not been able to function. Baku was providing 97 percent of Russian oil in 1890. In 1901 Baku oil production met aproximately half of the world's total need.[86] During the Soviet age, Baku oil revenues were taking away from the budget of Azerbaijan and included to the central Soviet budget. In the following years with the discovery of called "Second and Third Baku" and various oil fields in other parts of the Soviet Union; Azerbaijan Republic's oil production fell after being exploited for a long time. In 1940 Azerbaijan met 71.55 percent of the entire Soviet oil need whereas this figure fell to 39.15 perceny, 12.0 percnet, 5.7 percent, 2.4 percent, in 1950, 60, 70 and 80 respectively. The oil production was 21 million tones in mid-1960's, and the annual yields was almost 13 million tonnes and

[84] Nasib, Dr. Nassibili. 1998. "Oil and Geopolitics in the Causcasus and Central Asia, the Independent Azerbaijan's Oil Policy"; The US: The University of California Press. p.72-73.
[85] Yergin; Daniel1992. The Prize: The Epic Quest for Oil, Money&Power (3rd ed.) (Newyork: Simon&schuster Publications, 1992) p.345.
[86] Nasib, Nasibili; p 73.

even it went down. On the eve of independence, oil production was almost 9 million tones annually[87]

The Gorbachov's Prestroyka policy created more midless climate for the foreing investment in the Azerbaijan oil industry. In the 1980s, the newly untapped rich Chiraq and Azeri oil deposit, located in the Caspian Sea beds, was the one that initially received the foreing oil companies's attention. Azerbaijan Government announced a tender for the joint exploration of these rich fields and Amoco came out as the winner of the tender. In order to exploit the Azeri oil field's reserves a consortium was constituted under the leadership of the Amoco. Unocal, BP/Statoil, McDermott, Ramco were the other participants of the consortium. At that time the Government of Azerbaijan changed and Abulfez Elchibey was elected as President. In May 1993, six agreements were signed regarding joint venture in the area of "unitarization" of the oil deposits. However; revolution was begun in Azerbaijan and Elchibey and his government had to resign. The new President of the Azerbaijan was Haydar Aliyev, who was the leader of revolution, halted all of the oil negotiations. In the same year, in 1993, the new persident Aliyev granted a few concessions to Russia who had no share former agreements and was the biggest supporter of Aliyev, such as 10 percent ownership right to the Russian Lukoil company was granted by Aliyev in the next contract. A year later new negotiations resumed with the foreign oil company. One of the first applications of Aliyev administration was about the State Oil Company of Azerbaijan (Socar), which was established in September 1992 with the merger of Azerbaijan's two state oil companies-Azerineft and Azneftkimiya- for the operation of countries refineries, pipeline system and for managing the country's oil and natural gas exports and imports, and it was kept away from the renewed

[87] Aras, Osman Nuri; Azerbaycan'ın Hazar Ekonomisi Ve Stratejisi; İstanbul; Der Yayınları; 2001; p.27.

negotiations. After the appoinmet of the president's son Ilham Aliyev as the first deputy of the chairman of the Socar, the responsibility for negotiations restituted to the Socar.

Negotiations on the oil fields with foreing investment came to the end on 20th of September 1994 and agreement was signed under the name of "The Contract of Century". For investment $7.5 million was earmarked, 551 million tons of oil is planning to be produced. In the Azerbaijan International Operating Company (AIOC), the share of Socar is 20 percent, BP 17.3 percent, Amoco (US) 17.01 percent, Lukoil (Russia) 10 percent, Pennzoil (US) 4.82 percent, Unocal (US) 10.05 percent, Statoil (Norway) 8.56 percent, Itochu (Japan) 3.92 percent, Ramco (UK) 2.08 percent, Delta (S.Arabia) 1.86 percent, Exxon (US) 8 percent, TPAO (Turkey) 6.75.[88] Following this contract, in 1995 for "Karabagh oilfield" LukAgip (45%). Pennzoil (30%), Lukoil (12.5%), Socar (7.5%), Agip Azerbaijan (5%) signed another agreement, worth $2 billion. In 1996, the third contract was signed amonge BP and Statoil (51%), Socar (10%) Lukoil (10%), ELF (10%), Iran OIEC (10%), TPAO (9%) for "the Shah Deniz oilfield". In the same year, witnessed the conclusion of the fourth contract known as "Dan Ulduzu" and "Ashfari" in with Amoco, Unocal, Socar, Itochu, Delta were partners and it was worth $2 billion. The fifth contract, known as "Lenkeran Deniz" and "Talysh Deniz" which valuded $2billion, was signed by ELF, Socar, and Total. Following agreemets Yalama, Oguz, Apsheron, Nakhichivan, Inam, Kyurdashi, Southwest Gobustan, Muradkhanli-Jarfali and Zardab, Alov-Araz and Sharg, Kursanga and Karabalga, Zafar and Maslah, Salavan-Dalga-lerik Deniz and Junab, Padar, Mishovdag and Kemalettin and Yavan-Tava-Atashgyakh-Mugan were

[88] Aras, Osman Nuri; p.72.

signed. In 1997, another three contract which envisaged $10 billion investment, were signed in President Aliyev's official visit to the US[89].

During 2005, monthly oil production in Azerbaijan rose 150,000 bbl/d , driven almost exclusively by growth from the Azeri-Chirag-Guneshli (ACG) field. This is above the production levels the country produced at its peak during World War II. SOCAR, the state oil company of Azerbaijan expects the country's total liquids production to average roughly 600,000 bbl/d for all of 2006. Domestic petroleum consumption in Azerbaijan has fallen since Independence of the country resulting in a growing margin for net petroleum exports. Azerbaijan's net exports were amounted to roughly 310,000 bbl/d in 2005, most of which was routed to Russia, Italy, Turkey, and Germany. The SOCAR estimates proven reserves at 17.5 billion barrels which, under an antiquated Soviet reserve classification system, may include reserves that are either not viable or not fully proven. The country's largest hydrocarbon structures are located offshore in the Caspian Sea and account for most of the country's current petroleum production. The majority of Azerbaijan's oil output (59 percent in 2005) comes from SOCAR, but AIOC oil represents a growing share of the country's total production. During 2004, Azerbaijan exported approximately 211,000 bbl/d, but exports are expected to more than double to 478,000 bbl/d in 2006 and reach as high as 1.1 million bbl/d by 2008 according to Azeri government estimates. Implicitly, the government estimates assume additional production from new offshore discoveries as well as the modernization of old fields.[90]

Azerbaijan has proven natural gas reserves of roughly 30 trillion cubic feet (Tcf), and BP estimates the country has 48 Tcf of proven reserves. In 2004, state

[89] Aras, Osman Nuri; p.72.
[90]Enenrgy Information Administration; Country Analysis Briefs-Azerbaijan, August 2006, Official Energy Istatistic from US.Government; Availeble at: <http://www.eia.doe.gov/emeu/cabs/ Azerbaijan / pdf.pdf.>(Visited on:07.05.2006) p.2.

statistics showed that the country extracted 177 billion cubic feet (Bcf), a 4.4 percent increase from 2003. Roughly 77 percent of natural gas production in Azerbaijan is produced by Azneft, a SOCAR subsidiary, and the rest is produced by joint ventures. State officials project that Azerbaijan will produce up to 390 Bcf by 2008. But until the requisite infrastructure is completed, natural gas is being flared off instead of being piped to markets. As a result, Azerbaijan is currently importing roughly four times more natural gas than it was in 2001. Besides higher economic growth rates, one main cause of the newfound natural gas dependency is that oil-fired power plants have been converted into gas-fired ones. This has forced Azerbaijan to import roughly 160-175 bcf per year from Russia at a price of $1.70 per 1,000 cubic feet (mcf), up from $1.47 per mcf in 2004.In spıte of the large Shah Deniz natural gas field, Azerbaijan is currently a net natural gas importer. Azerbaijan produced 190 Bcf of natural gas in 2004, while consuming roughly 360 Bcf.

3.2.1.2. Kazakhistan

The other Former Soviet Rupublic Kazakhistan with its huge landmass emerged as an independent states in 1991 after the demise of the Soviet pact. Kazakhistan is a vital region for world energy markets thanks to its significant oil and natural gas reserves. In the Soviet period, Kazakhstan was the second largest oil producer of the Eastern bloc. Its production was over half a million barrels bbl/d while the Soviet system was collopasing in 1991.

Kazakhistan has the Caspian Sea region's largest recoverable crude oil reserves, and its production account for approximately two-thirds of roughly 1.8 bbl/d currently being produced in the region (including regional oil producers Azerbaijan, and Turkmenistan). Following its independence Kazakhstan's oil sector

was opened up for investment and development by foreign energy companies. International projects have taken the form of joint ventures with Kazmunaigaz , the national oil company, as well as production-sharing agreements, and exploration/field concessions. After years of foreign investment into the countries oil and natural gas sector, the landlocked Central Asian state has recently begun to realize its enormous production potential.

Kazakhistan's combined onshore and offshore proven hydrocarbon reserves have been estimated between 9 and 29 billion barrels. According to earlier assessment in the 1990 country's oil reserves was estimated at just 16 billion barrels, much lower than today. Kazakhistan produced approximately 1.22 bbl/d of oil in 2004 and consumed 224.000 bbl/d. It means that thanks to 1 million barrels, Kazakhistan is a net exporter in the oil sector. The aim of the Kazakh goverment is to increase the oil production level around 3.5 bbl/d by 2015. This would include approxiamtely 1 bbl/d from Kashagan, 700.000 bbl/d from Tengiz, 600.000 bbl/d from Kurmangazy, and 500.000 bbl/d from Karachaganak. Other smaller projection field would account for the balance. Tengiz, Karachaganak, Kashagan; Kurmangazy are the main oil and natural gas fields of the country. The Tengiz field's, which is located in the swaplans along the northeast shores of the Caspian Sea, recoverable crude oil reserves have been estimated at 6-9 billion barrels. The Tengizchevronoil (TCO) joint venture (ChevronTexaco 50%, ExxonMobil 25%, Kazmunaigaz 20%, LukArco 5%) have been developed the Tengiz oil field since 1993. According to members of the consortium the Tengiz field has potential to produce 700.000 bbl/d by the end of the first decade of twenty one century. In 2004, approximately 271.000 bbl/d were sent from the Tengiz field thorugh the Caspian Pipeline Consortium (CPC) project to the Russian Black Sea port of Novorossiysk. The Karachaganak oil and

gas field , which is located northern part of the country, is being developed by Karachaganak Integrated Organization (KIO) led by BP Gas and ENI (Italy). The field reserves of more than 2.4 billion barrels of oil and 16 Tcf of gas and recoverable over the 40-year life of the project. The target of the consortium is to reach 500.000 bbl/d by 2010. Field of Kashagan that is the fifth largest oil field inthe world and the largest oil field outside the Middle East, is located northern part of the Caspian Sea. The reserves of the field was estimated the field's recoverable reserves at 7-9 billion barrels of oil equivalent, with further potential totaling 9 to 13 billion barrels using secondary recovery techniques, such as gas injection. Until 2008 oil production is not expected to begin at initial levels of 75.000 bbl/d, whith subsequent levels around 450.000 bbl/d. Peak production of 1.2 million bbl/d is expected by 2016. In addition, the field also contains a high proportion of natural gas under very high pressure. The last largest filde of Kazakhstan is the Kurmangazy which is least developed of Kazakhstan's upcoming oilfield developments, located on the maritime border between Russia and Kazakhistan. This two state signed a new $23 billion PSA agreement for 7.3 billion barrels Kurmangazy oil field in july 2005.[91]

As a landlocked country's the best way is a pipeline infrastructure to export its production. During the Soviet era, country's oil pipelines were integrated with Russia's, and all of Kazhaks oil was exported through the Russian pipeline system. There are three directions for exporting: northward or the Russian pipeline system and rail network; southward or swamps with Iran; and westward through the Caspian Pipeline Consortium Project and barge to Azerbaijan. The majority of Kazakh oil is exported via pipeline through Russia and other neighboring countries. Connectins to ports on the Black Sea and the Persian Gulf have allowed some Kazakh oil to be

[91]Enenrgy Information Administration; Country Analysis Briefs-Kazakhstan; Official Energy Istatistic from US.Government; Availeble at: <http://www.eia.doe.gov/emeu/cabs/kazak.pdf> (Visited on: May 07,.2005), p.5

traded on the world market. The most important pipeline routes of the Kazakhstan are Atyrau-Samara Pipeline which is the major oil pipeline, The Caspian Pipeline Consourtium and eastward Kazakhstan-China Pipeline

Despite Kazakhistan's sizeable proven natural gas reserves of 65-70 Tcf, the country spent most of the time following independence as a net natural gas importer. Most of Kazakhstan's natural gas is imported from Uzbekistan and Turkmenistan. Gas production in Kazakhstan has increased significantly since 1999. According to the 15-year strategy of Kazakh Ministry for Energy and Mineral Source, the country plans to increase its natural gas production is to 1.66 Tcf by 2010, and 1.84 Tcf by 2015. Most of the deposits are located in the west of the country, with roughly 25 percent of proven reserves stiuated in the Karachaganak field. Several of the country's other oil fields, for example,Tengiz and Kasgahan, also contain associated natural gas. Another important natural gas field, Amangeldy ,is situated in the south of the country and exploratory drilling in 2001 indicated reserves of up to 1.8 Tcf. Kazakhistan has two main distribution networks, in the west one that services the country's production natural gas, and in the south one which mainly delivers imported natural gas to the southern consuming regions. In the north, Kazakhistan is developing its ability to export its natural gas through Russia's natural gas pipeline system.

Apart from oil and natural gas, Kazakhistan contains Central Asia's largest recoverable coal reserves, with 37.5 billion short tones of mostly anthratic and bituminous coal. In 2003, coal production was 86 million short tones (Mmst) when consuption was 58 Mmst. The biggest market for Kazakh coal is Russia which is followed by Ukraine. Coal production has fallen by roughly 35 percent since independence. Currently The Ministry of Energy of Kazakhistan plans to be

producing 100-105 Mmst annualy by 2015. Kazakhistan's the largest coal producer, Bogatry Access Komir, which accounts for roughly 35 percent of the country's coal output, is a subsidiary of Access Industries Incorporated (USA). Since its independence, Kazakh coal consumption has fallen from 97 Mmst in 1992 to 58 Mmst in 2003. As a percentage of total energy consumption, coal accounted for 52 percent in 2002, up slightly from 50 percent in 1992. The majority of Kazakhstan's electric generating plants are coal-fired, including country's largest power generation, Ekibastuz No.1, located in north-central Kazakhstan.[92]

3.2.1.3. Turkmenistan

Another Caspian littoral state, Turkmenistan, is independent since the demise of the Soviet system and is primarily rich in gas reserves. Geopolitic condition of the country causes some problems with its neighbours. First of all, for natural gas-rich it is dependent on the countries pipeline and other infrastructure, especially Russian. Another debate about Turkmenistan energy resources is dispute over the maritime border between Turkmenistan and Azerbaijan. Energy resources is vital for country's economy but decision about the attitutes towards its neighbours jeopardize the political relations with the other states of the Caspian Sea region and Central Asia.

Turkmenistan has proven oil reserves of roughly 546 million barrels, although some reports claim oil reserves of as high as 1.7 billion barrels. Most of the country's oilfields are situated in the South Caspian Basin in the west of the country. Turkmenistan has experienced significant oil production growth since it obtained independence from the USSR, more than doubling from 110,000 bbl/d in 1992 to approximately 260,000 bbl/d in 2004. However, many of the prime oil deposits are

[92] Country Analysis Briefs-Kazakhstan, p.7.

located in disputed areas of the Sea, and without an agreement between Iran, Azerbaijan, and Turkmenistan on maritime borders, these fields will remain undeveloped. Turkmenistan's dispute with Azerbaijan over the Serdar/Kyapaz field in the Southern Caspian is one example of how the lack of agreement on maritime borders has kept the field from being developed. The government has frequently targeted higher oil production, but the oil sector struggles to meet its growth goals due to lagging foreign investment. Foreign investment is limited to joint-ventures and production-sharing agreements, and Turkmen officials hope to attract $500 million in oil-sector investment this year. The President Saparmurat Niyazov hopes to boost Turkmen oil extraction to 2 million bbl/d by 2020. On the other hand, even though Turkmenistan exported approximately 170,000 bbl/d in 2004, it is the most oil intensive country in the world. It consumes over nine times as much oil per unit of GDP as the average country.[93]

Turkmenistan has two refineries, the Chardzhou and Turkmenbashi, which in total provide nearly 240,000 bbl/d of crude oil refinery capacity. Turkmenistan's refinery system is also underutilized and only processed 137,000 bbl/d of oil from Jan-May 2005, a 1 percent increase from the same time period in the previous year. According to Turkmen officials, refinery throughput dropped because of work to the Turkmenbashi refinery. Turkmenistan has no oil pipelines, meaning that all the crude oil exported from Turkmenistan is shipped by sea. Even after shipping its oil by tanker to Russia's Caspian Sea port of Makhachkala, however, securing pipeline access has been a problem for Turkmenistan. Turkmenistan exported approximately 60,000 bbl/d of crude oil and condensates in 2004, down from 75,000 bbl/d in the autumn of 2002, and imported roughly 20,000 bbl/d of crude oil from Russia. A

[93] Enenrgy Information Administration; Country Analysis Briefs-Turkmenistan Oil Reserves; Energy Istatistic from US.Government Available at: http://www.eia.doe.gov/emeu/cabs/Centasia/pdf.pdf. (Visited on: 07/05/2006), p.2.

negligible amount of Turkmen oil product is exported to the north-eastern Iranian market which is, shipped from the Turkmenbashi refinery to the Iranian port of Neka. The oil swaps began in July 1998. Since December 2001, a second crude marketing route has been established through Baku, Azerbaijan and a third route through the port of Makhachkala in Russia on the basis of transportation tenders. Despite U.S. resistance, Iran continues to project itself as the most viable outlet for Central Asian oil and natural gas exports.

Apart from the oil reserves of the country, Turkmenistan has huge natural gas reserves which are found primarily in the east, in the Dauletabad-Donmez field within the basin of the Amu Darya river, and in the south, in the Yashlar field within the Murgab river basin. Turkmenistan has proven natural gas reserves of approximately 71 Tcf according to the Oil and Gas Journal. That reserve level ranks Turkmenistan among the top 15 countries in terms of natural gas reserves. Turkmenistan contains several largest gas fields of the world . These include Dauletabad, which held about 60 Tcf of gas before being brought into production in 1982, and Shatlyk, which held 33 Tcf of gas reserves before coming onstream in the early 1970s. All major gas fields in Turkmenistan have been producing for more than a quarter century, and therefore exhibit signs of natural depletion. [94]

3.2.1.4. The Caucasus Region

The Proximity of the world's two rich energy resources regions makes the Caucasus one of the most important chokepoints. The region consists of three states which have been independent since the collapse of the Soviet Union; Georgia, Armenia and Azerbaijan, the latter one is also classifed in the Caucasus region. Azerbaijan is also different from the other two states of the region owing to its wealthy on hydrocarbon

[94] Country Analysis Briefs- Turkmenistan Gas Reserves; p.3.

reserves. As here in defined, the Caucasus Region consists of two highly dependent net energy importers surrounded by some of the world's energy giants (i.e. Russia, Iran, and to a smaller but growing extent, Azerbaijan). Energy priorities of the Caucasus countries, therefore, are two-fold: to diversify their energy supplies; and to cash in on transit revenues as their neighbours develop export facilities which traverse their territory. Three of the new export pipelines will pass through Georgia, while none are scheduled to cross Armenia due to its unstable bilateral relationship with Azerbaijan.[95]

As oil production from the Caspian Sea region increases, the Caucasus region has become an integral export route for oil and natural gas. Previously, the only way for Caspian energy to reach European consumers was via the Russian pipeline system. Currently, three of the largest projects to these ends cross through Georgia. Small oil resources exist in the region, and the new infrastructure will allow these smaller projects (i.e. refineries and smaller oil fields) to tie in to the pipeline and become economically viable.

The Baku-T'bilisi-Ceyhan (the BTC) provides transit tarrifs to Georgia and will be alloted a small percentage of fuel passing through the Republic. Oil transportation tariffs will rise from $0.89 to $1.86 per ton adding $62.5 million per year to Georgia's national budget, and will decrease the unemployment rate. Georgia is obligated to receive 5% of the gas carried by the SCP pipeline, or it must pay a fee. In monetary terms, this quantity is equivalent to around $17 million per year.

Another export route to transport, initially, Azeri oil via Geogia is Baku-Suspa pipeline which was constructed to pump "early oil" of Azerbaijan and became operational in April 1999. At the beginning it had an original design capacity of

[95] İşyar, Ömer Göksel; 2004; Sovyet-Rus Dış Politikaları ve Karabağ Sorunu (Soviet-Russian Foreing Policies and Nogorno-Karabağ Conflict); İstanbul: Alfa Basım Yayım Dağıtım Ltd. Şti. p.610.

100,000 bbl/d. but recent upgrades have raised capacity, and throughput capacity is now around 220,000 bbl/d at Supsa. The Baku-Supsa route, however, was designed to carry only the early oil from the AIOC's development of the Azeri-Chirag-Gunashli fields, and although there has been discussion of increasing the pipeline's capacity to 300,000 bbl/d or even 600,000 bbl/d, AIOC is planning to export its future production via BTC, once it becomes operational. Exports via Baku-Supsa represented roughly 40 percent of AIOC's total exports from Azerbaijan in 2005.

In the natural gas sector, state of the Caucasus, including Azerbaijan, are dependent on foreign resources, particulary Russia and Iran. On the Gerogian side, the biggest partner and supplier opf natural gas is Russia. In 2005, Georgia increased natural gas imports from Russia by 14 percent to 50 Bcf. During 2006, the country's gas consumption is expected to rise to almost 80 Bcf. Almost all (70 Bcf) of Georgia's natural gas will be provided under a supply agreement with Kazakhistan via Gazprom pipelines. Despite Turkmenistan and Kazakhistan piped natural gas from their resources, they have to use the transportation routs of Russian pipeline system. In addition, a company independent Itera which had supplied natural gas demand of region was purchased by the state monopoly of Russia Gasprom. And finally, in January 2006, two explosions damaged the transit pipeline and cut off supplies of Russian natural gas to Georgia and Ukraine. Georgian President Mikhail Saakashvili blamed the Russia's security services for explosions, and Russia accused Saakashvili of being "hysterical".[96]

In the Armenian side who had no oil resources, like Georgia depends on Russia to meet requirement of natural gas. Armenia and Russia renegotiated the terms of their natural gas contract in early 2006. Armenia's government ceded to Gazprom its

[96] Enenrgy Information Administration; Country Analysis Briefs-the Caucasus Region; Energy Istatistic from US.Government Available at: http://www.eia.doe.gov/emeu/cabs/Caucasus/pdf.pdf (Visited on: 07/05/2006), p.3.

45 percent stake in ArmRosGazprom, a joint venture between Gazprom and Armenia's government that controls the transportation and distribution of Russian natural gas to Armenia. In exchange, Gazprom will freeze prices at $110 per thousand cubic meters (mcm) until January 1, 2009. Armenia was paying $60 per mcm for natural gas from Russia until the agreement was signed for the new prize. Gazprom might also obtain various natural gas assets controlled by ArmRosGazprom, such as the Razdan-5 power station in Armenia. Gazprom will also help construct a 140 MW gas-fired electricity turbine at the Razdan-5 plant from which the company can export electricity. Another hope about supply of natural gas for Armenia is Iran-Armenia pipline project in order to diversify its natural gas supplies. After the ten years delay due to disagreements between the two sides over natural gas prices and the location of the pipeline, the construction began in 2005 and planned to be finished in January 2007. Initially, Armenia will receive 38 Bcf per year (1.08 million cubic meters per year) with plans to double the volume of imports by 2019. In exchange, Armenia will provide Iran with 3 kilowatts of electricity per cubic meter of gas.

3.2.2. Other countries of the Region: the Energy Giants

3.2.2.1 Russia

In the era of Tsar, Russia gained control of both the Caucasus and Central Asia and had maintaned and reinforced its influence over the region during the Soviet period. However, in debris of the Soviet system, Russia found itself in a very complicated situation. As the successor of the Soviet Union, Russia aimed to control her former backyard- the Caucasus and Central Asia. At the same time, after the collapse, Russia pursuaded a western-oriented policy but then revised this position because of

attitutes of the western to expand its military alliance –NATO- eastern border. Under this condition, Russia started to reconstructed the Common Wealth of Independent States (the CIS) to more thigten collobration and, sougt to develop its economic and politic links with Eastern neighbours, especially China and India, and improved relations with the Middle Easte countries, especially Iran.

In the Caspian region, Russia desires to remain stronge and control over the CIS, to ensure the security of its south border. Since 1991, Russia has been trying to preserve former Soviet Republics in its area of influence. The restoration of Russians influence within the space of the former Soviet Union directly determines the future of it. The hydrocarbon reserves of the Caspian region, in spite of all its economic significance, is merely manifestation of the global task of present-day restorations of Russia's power.

Over the ruins of the Soviet Empire, two distinct approaches are established in Russian foreign policy. First one is Atlantic approach whose main features were breaking the ties with the communist past, coming closer to Western values of democracy and its international institutions such as NATO and OSCE. Atlantic approach also required privatization and radical reforms for integration into western free market economy. On the opposite side, Euroasianists were mainly supported by military and industrial complex and they claim that as a Euroasian state, Russia should have its own foreign policy, which was different from the Western values. On the other hand, both sides want their country to become an economically advanced and law-based democracy.[97]

In this period, two types of Caspian views emerged in Russian intelligentsia. While ultra-nationalist groups advocate reestablishing Russian hegomony in the

[97] Dugin, Aleksandr; 2004; Rus Jeopolitiği, Avrasyacı Yaklaşım; (Russian Geopolitics, Euroasian Approach) (2nd. Ed.); İstanbul: Küre Yayınları. pp. 5-6.

region, more modarate minded group see the region as an area where Russia can play an economic role with out necessarily reasserting sovereignty over the ex-Soviet territory. A strong hand of Russia to preserve the control over the region was its monopoly of the oil and gas pipeline system. In terms of transportation of the Caspian Oil, Russia wanted to transport both Azeri and Kazakh oil through Novorossiysk terminal, by passing Turkey. However, conflict in Checnia damages Russian interest for transportation because the pipeline between Azerbaijan and Novorosisyk passes from Grozne, the capital of Checnia, or in other word passes in the most unstabilized zone of the region. On the other hand, ethnical and regional some disputes, ironically, are supported by Russia. According to Russian view, continuity of the current chronic politic conflict atmosphere in the region will provide obstacle for pipeline setting on Georgia and attempts to continue this negative structure like it was in Georgia-Abkhazia issue or Nogorno-Karabagh dispute.

While Russia has tremendous influence over the transportation of the Caucasus gas and oil, it is one of the most important hydrocarbon richest countries of the world. Russia holds the world's largest natural gas reserves, the second largest coal reserves, and the eighth largest oil reserves. Russia is also the world's largest exporter of natural gas, the second largest oil exporter, and the third largest energy consumer. Russia has proven oil reserves of 60 billion barrels, most of which are located in Western Siberia, between the Ural Mountains and the Central Siberian Plateau. By 2005 Russian total liquids production averaged almost 9.5 million bbl/d (9 million bbl/d of which was crude oil)--a 2.5 percent increase over 2004. This growth rate was down from annual growth of roughly 10 percent in 2004 and 2003. These production levels have made Russia the world’s second largest producer of crude oil,

behind only Saudi Arabia. In the upcoming decade, a few major oil fields will contribute to most of Russia's growth supply and others will contribute to decreasing production from mature fields. Production from mature oil fields has a major role in the recent slowdown in Russian oil supply growth. New field developments will produce almost all of Russia's annual oil growth in the next five years and will likely produce more than half of the country's oil in 2020. In the next 5 years, new field developments at Lukoil's Middle Caspian project (at Kurmangazy in 2006), the Sakhalin Island projects, the Shell Joint Venture's West Salymskoye project, Lukoil/ConocoPhillips's TimanPechora project, Rosneft/Gazprom's Prirazlomnoye project, and Rosneft's Vankorskoye and Komsomolskoye will help stem production losses at older fields. Over 70 percent of Russian crude oil production is exported while the 30 percent is refined locally. November 2005, roughly 1.4 million bbl/d of Russia's oil exports are sent via the multiple-branch Druzhba pipeline to Belarus, Ukraine, Germany, Poland, and other destinations in Central and Eastern Europe (including Hungary, Slovakia, and the Czech Republic). The remaining crude oil is exported to maritime ports in the Black Sea and Baltic Sea and sold on world markets. Also, because of higher world oil prices recently, almost 170,000 bbl/d of Russia's oil is transported via railroad Most of Russia's product is exported consist of fuel oil and diesel fuel, which is used for heating in European countries and, on a very small scale, in the United States. During the first half of 2005, Russia exported almost 4 million bbl/d of crude oil, well below predictions of 5.5 million bbl/d in late 2004 but 11 percent higher than exports during the same period of 2004. Russia also exported roughly 116,000 bbl/d to China during 2004, expects to export 160,000 bbl/d during 2005, and projects exports of 300,000 bbl/d in 2006. Under the

Ministry's economic forecast, Russian oil exports could grow to around 5.8 million bbl/d in 2007, and up to 6.2 million bbl/d by 2015.[98]

Russia holds the world's largest natural gas reserves, with 1,680 trillion cubic feet (Tcf)-- nearly twice the reserves in the next largest country, Iran. Accordingly, in 2004 Russia was the world's largest natural gas producer (22.4 Tcf), as well as the world's largest exporter (7.1 Tcf). However, Russia's natural gas industry has not been as successful as its oil industry, with both natural gas production and consumption remaining relatively flat since Independence of Russia. Moreover, Gazprom's natural gas production forecast calls for only modest growth (about 1.3%) by 2008. Russia's natural gas sector has been stunted primarily due to aging fields, state regulation, Gazprom's monopolistic control over the industry, and insufficient export pipelines. Three major fields (called the 'Big Three') in Western Siberia-- Urengoy, Yamburg, and Medvezh'ye comprise more than 70% of Gazprom's total natural gas production, but these fields are now in decline. Although the projects of the company are increasing its natural gas output between 2008 and 2030, most of Russia's natural gas production growth will come from independent gas companies such as Novatek, Itera, and Northgaz. Historically, the majority of Russia's natural gas exports were sent to customers in Eastern Europe. But since the mid 1980's, Russia began looking to diversify its export options. Russia continues to export significant amounts of natural gas to the customers in the Commonwealth of Independent States (CIS). In addition, Gazprom (through its subsidiary Gazexport) has shifted much of its natural gas exports to serve the rising demand in countries of the EU, as well as Turkey, Japan, and other Asian countries. Until the late December

[98] Energy Information Administration; Country Analysis Briefs-Russia; Energy Official Istatistic from US.Government, Available at: <http://www.eia.doe.gov/emeu/ cabs/ Russia/pdf.pdf> (Visited on: May 07, 2006), p.4.

2005 Russia and Ukraine had not reached an agreement in prices on natural gas supply in 2006, and on January 1, 2006, Gazprom shut off gas supplies to Ukraine, with supplies to Europe reportedly also being affected. Even though Russia has threated to a cut off higer demand of natural gas prices in recent years, this was the first time that supplying disruption has affected to flow to Europe. Eventually, Russia's natural gas company agreed to sell its natural gas to RosUkrEnergo, a trading company that also imports natural gas from Central Asia, at the market price of $6.51/mcf ($230 per thousand cubic meters). On January 4, 2006, Ukraine signed a five-year agreement to buy 580 Bcf of natural gas from RosUkrEnergo at $2.69/mcf (comprised of less expensive natural gas from Central Asia). In 2005, Ukraine contracted to buy 812 Bcf at $1.41/mcf. In return for, Russia agreed to pay Ukraine natural gas transit fees of 7.3 cents per thousand cubic feet per 100 miles, a 47 percent price increase from 2005. The contracts are also subject to review each year and may be adjusted to new a market price, or Gazprom to fulfill its a long-term aim of increasing European sales, it needs to boost its production, as well as to secure more reliable export routes to the region. In 1997, Gazprom began importing natural gas from Turkmenistan to help fulfill its a supply contract with the Netherlands. Since then, Turkmenistan and Russia have repeated their disputes over the prices of the natural gas resulting in a complete halt to natural gas supplies in 2004. The agreement with Turkmenistan and Russia , signed in January in 2005, guarantees initial natural gas exports of 212 bcf in 2005, drastically increasing to 2.4 Tcf in 2007, and remaining at 2.8 Tcf from 2009 to 2028. Turkmenistan maintains that the $1.55/mcf price it agreed to is too low in comparison to the resale value of the natural gas in European markets, and it wants to raise the price to $1.76/mcf in 2006 and $2.12/mcf in the following years.

3.2.2.2. Iran

Iran has an important gravity on the caspian region thanks to its oil and gas reserves, religious factor, Caspian Sea dispute and the borders. Also Iran is an energy export competitor to the Caspian Sea producers and it is in desperate need of investment to revitalize its own energy sector. Despite the US embergo, Iran is interested by Western companies due to its huge oil and gas reserves.

After the collapse of the Soviet Union, Iran found itself in a new geopolitical situation as the natural focal point through which the landlocked states of Caspian Basin can reach the outside world. That geographical reality was emphasized by the stronge desire of all these newly independent states to reduce their dependency on Russia. Thus for the first time since the 18th century, the diminishing of the "meance from the north" created new ambitions concurently. It formed new geostrategic opportunities in the Caucasus and Central Asia, while at the same time opening new routes to Europe via the Caucasus. Despite many differences, Iran has many historical, cultural or linguistic points in common with its new neigbours and these common points can be considered as opportunities for approchment. On the other hand, Tehran has other reasons to take a stronge interest in Caspian affairs. With one-quarter of its population being Azeri, Tehran has a strong interest in preventing any irredentist movement from developing along its border.But Most experts agree that Iran has not sought to export its brand of fundamentalism. [99]

The main aim of Iranian foreign policy is to prevent the USA and its Turkish and Saudi (the religious fiel) allies to fill the power of vacuum created by the fall of the Soviet Union. Being aware of that it could never fill the vacum itself Iran played

[99] Pamir, Necdet, Bakü CeyhanBoru Hattı,Ankara,Asam Yay. ;1999; p.42.

Russian card, on a North-South axis (Moscow-Yerevan-Tehran) to counter the East-West axis (Washington-Ankara-Baku-Thaskent).

Two sets of determinants of Iran's policies towards the Post-Soviet Republics of the Caucasus and Central Asia may be distinguished. The first has to do with security and political consideration. The second is cultural and economic considerations. In the political and security area, Iran has to deal with a volatile security environment to the north since 1991. The number of its neighbours increased from one to three on land and one to four on the Caspian Sea. In addition to this, Iran is closer to the trouble spots of intense ethnic conflicts in the Caucasus than any other country. In the economic and cultural arena, there are deep historical ties between Iran and Central Asia also Islam is of course a common cultural denominator between them. At the economic level, Iran looks to the region as an important market for Iranian consumer goods. Oil and gas transportation provide additional economic bases for a closer relationship between the former Soviet states of the Caspian and Iran which can be an attractive transit route from the Caspian basin to world markets. Iran's geographical position between the Caspian Sea and the Persian Gulf provides an outstanding opportunity for oil and gas pipelines to run from the Caspian Sea to the Persian Gulf and the Gulf Of Oman.

Iran is also the natural competitor for the Caspian states on the energy producing and exporting sector. Iran held 125.8 billion barrels of proven oil reserves as of January 1, 2005, roughly 10 percent of the world's total. In July 2004, The Iran's oil minister noted that the country's proven oil reserves had increased to 132 billion barrels following discoveries in the Kushk and Hosseineih fields of Khuzestan province. The vast majority of Iran's crude oil reserves are located in giant onshore fields in the southwestern Khuzestan region near the Iraqi border. Overall, Iran has

40 producing fields – 27 onshore and 13 offshore. Iran exports around 2.7 million bbl/d, with major customers including Japan, China, South Korea, Taiwan, and Europe. Aside from acting as a transit center for other countries' oil and natural gas exports from the Caspian Sea, Iran has potentially significant Caspian reserves of its own, although only a small amount (0.1 billion barrels) has been proven as "recoverable." Currently, Iran has no oil or natural gas production in the Caspian region.[100]

Iran contains an estimated 940 trillion cubic feet (Tcf) in proven natural gas reserves - the world's second largest and surpassed only by Russia. Around 62 percent of Iranian natural gas reserves are located in non-associated fields, and have not been developed, meaning that Iran has great potential for future gas development. Major non-associated gas fields include: South Pars (280-500 Tcf of gas reserves), North Pars (50 Tcf), Kangan (29 Tcf), Nar (13 Tcf), and Khangiran (11 Tcf). With its enormous natural gas reserves, Iran is planning to export large volumes of gas. Turkey and also the other potential customers for Iranian gas exports are: Ukraine, Europe, India, Pakistan, Armenia, Azerbaijan, Georgia, Taiwan, South Korea, and even China. Exports could be via pipeline and/or LNG tanker, with possible LNG export terminals at Asaluyeh or Kish Island.

3.3. Transportation of the Caspian Reserves

The best way to export production of the countries is the pipeline if a country goegraphically landlocked. Roughly all countries of the Caspian Sea basin are sharing same destiny, absence of the free and politically comfortable transportation routes. As in the example of the Caspian and Central Asian states, their profit from

[100] Enenrgy Information Administration; Country Analysis Briefs-Iran Official Energy Istatistic from US.Government, Available at: <http://www.eia.doe.gov/emeu/cabs/Iran/pdf.pdf> (Visited on: May 08, 2006), pp.2-3.

exporting quantity is depend on economic and politic agreements between they and their neighbours whose condition are more convenient to reach global energy market. The demise of the Soviet Union created new opportunities for companies who want to invest in the Caspian Sean region. The tremendous oil production potential in the Caspian Sea and surrounding region has led to a boom in investment and fierce competition for exploration and development rights. Currently, the independent countries of the Caspian Sea are seeking to grow their oil and gas production level and to diversify their export routes. After the implementation of new techniques and development in the oil and gas reserves requirement for new pipeline and way will be necessary for exporting. Earning hard currency from these resources is essential to regional development plans, as well as to recouping the huge investments are made by multi-national oil companies. However, for these purposes, the infrastructure left after the collapse of the Soviet Union is inadequate. Numerous new pipelines and pipeline expansions in each of the cardinal directions have been proposed, and some have been constructed.

Geopolitical isolation and other unresolved disputes, such as legal status of the Caspian Sea, is making the transportation difficult and expensive. In addition to these considerations, some regional conflict in the region jeopardize the future of the transport routes and inevitably future of the energy sector of the states of the Caspian Sea.

3.3.1. Westwards Pipeline Routes

In the Soviet era, all pipeline which came from the the Central Asia and the Caspian Sea basin had to use the way of Russia to distribution and exporting. Despite the demise of the Soviet system, this stiuation has not completely changed, actually, in the first decade after the collapse, the new Caspian and Central Asia countries had to

use the pipelines which reach the world market via Russia. Surely, this sort of weakness of the former Soviet Republics have been used by Russia to regain its political and economic influence over the region. In addition, Russia percives its old colonies as new rival on the energy sector that provides most precious revenue for both sides Russia and Newly Independent States Caspian Sea and Central Asia. In order to diminish Russian pressure over the oil and naturalgas transportation issue, countries of the region are searching new ways. The best way to consturuct a new route is the cooperation between the region's states and participation of the energy-giant companies.

Historically old-piplines were structured north-south axis because of the Russian benefits. Changing the region's energy flow to an East-West axis towards Europe, from the existing North-South axis towards Russia is integral to the development goals of these newly independent states. From the mid-1990's three main pipeline have been constructed to reduce dependency on Russian infrastructure in the new axis East-West axis to reach directly European huge energy market. The regions three biggest pipeline project are the Caspian Pipeline Consortium Project (CPC), the Baku-T'bilisi-Ceyhan oil pipeline (BTC), and the South Caucasus Pipeline (SCP). However, Russia and its oil companies still remain integral players in the development of these projects, and those companies stand to receive sizeable portions of the profits when they come to fruition.

The Caspian Pipeline Consortium Project (CPC): The CPC project connects Kazakhstan's Caspian Sea area oil deposits with Russia's Black Sea port of Novorossiysk. Oil is loaded at Novorossiysk and is taken by tanker to the world markets. Although the CPC pipeline transvers to Russia and was developed in conjunction with the Russian government, the pipeline has, for the first time was

given the Caspian Sea region and Kazakhistan a viable alternative to the Russian dominated northern export routes (namely Atyrau-Samara). One downside to additional Caspian oil exports through the CPC pipeline is higher export levels will increase congestion in Turkey's Bosphorus Straits, which connect the Black Sea to the Mediterranean. Oil flows through the Bosphorus range from 2.5 - 3.0 million bbl/d. The CPC expansion could add an incremental 750,000 bbl/d of oil through the Strait.

The Baku-T'bilisi-Ceyhan oil pipeline (BTC): The Baku-T'bilisi-Ceyhan (BTC) pipeline, will export Azeri (and possibly up to 600,000 bbl/d of Kazakhstani) oil along a 1,730 km. route from Baku, Azerbaijan via Georgia to the Turkish Mediterranean port of Ceyhan. This will allow oil to bypass the Bosporus Straits. A BP-led consortium will operate the pipeline. Construction of the 1-million-bbl/d BTC pipeline was completed in May 2005, with the first tanker delivers were expected by Summer 2006. Oil began flowing into Azeri section of the pipeline May 25, 2005, and into the Georgian border on August 10, 2005. In October 2005, Kazakhstan signed a long-awaited inter-governmental agreement with Azerbaijan for the supply of up to 600,000 bbl/d of crude oil to the BTC pipeline. The oil would be delivered from Kuryk, roughly 60 miles south of the major oil port of Aktau, and would then be shipped via tanker across the Caspian Sea to the port of Sangachal.. Kazakhstani officials have said that much of the new oil would come from the Kashagan field. Kazakhstan also announced it has begun building a new class of Caspian tankers to replace the existing vessels that currently carry much of the region's maritime oil trade. Up to 150,000 bbl/d of the crude oil may reach international markets through the Baku-Supsa pipeline and the Bosporus straits.

South Caucasus Pipeline (SCP): A third natural gas pipeline, known as the South Caucasus Pipeline, a.k.a Baku-Tbilisi-Erzurum, or BTE, will run parallel to the BTC oil pipeline for most of its route before connecting to the Turkish infrastructure near the town of Erzurum. The cost roughly is $1 billion, the 550-mile long South Caucasus pipeline is designed to carry natural gas from Azerbaijan's Shah Deniz field, and have an initial capacity of 1.5 bcf/d. The pipeline will be expanded to 3 bcf/d in 2007 and is scheduled to be completed by October 2006, in time for the Shah Deniz project's first contracted exports to Turkey. The project's operators reported that the pipeline was 70 percent completed in July 2005. Although most of the natural gas will be exported to Turkey, some of the natural gas will be sent to Europe via a transit pipeline through Greece. The SCP consortium comprises BP and Norway's Statoil, each with 25.5 percent, Azeri state oil company Socar, Russian-Italian venture LukAgip, Iran's Nico and French Total, all with 10 percent each, and Turkey's TPAO with 9 percent.

3.3.2. Southwards Pipeline Routes

An additional way for Caspian region exporters to supply Asian demand would be to pipe oil and natural gas south through Iran to the Persian Gulf or southwest to Afghanistan. The Afghanistan option, which Turkmenistan has been promoting, would entail building pipelines across war-ravaged Afghan territory to reach markets in Pakistan and possibly India. With the ousted of the Taliban in Afghanistan in December 2001, proposals to build up a Trans-Afghan natural gas pipeline have been emerged. The Trans-Afghan pipeline, also called the Turkmenistan-Afghanistan-Pakistan (TAP) pipeline, would span over 1,000 miles from a point in Turkmenistan

to Fazilka (India) on the Pakistan-India border. A feasibility study, commissioned by the Asian Development Bank was completed in 2005.

Development of a southern pipeline through Iran would be problematic under the Iran and Libya Sanctions Act, which imposes sanctions on non-U.S. companies investing in the Iranian oil and natural gas sectors. U.S. companies are already prohibited from conducting business with Iran under U.S law. In 1997, however, Turkmenistan and Iran completed the $190 million Korpezhe-Kurt Kui pipeline linking between the two countries, thereby becoming the first natural gas export pipeline from Central Asia to bypass Russia. According to the terms of the 25-year contract between the two countries, Iran will take between 177 Bcf and 212 Bcf of natural gas from Turkmenistan annually, with 35 percent of Turkmen supplies allocated as payment for Iran's contribution to building the pipeline.

Turkmenistan and Kazakhistan have initiated low-volume oil "swap" deals with Iran, delivering oil in tankers to refineries in Iran's northern regions in exchange for similar volumes of crude at Iranian ports in the Persian Gulf. During early 2004, Iran completed efforts to upgrade its domestic distribution network and its port at Neka on the Caspian Sea to allow for swap capacity to increase from roughly 50,000 bbl/d to 170,000 bbl/d. Iranian oil officials claim that Neka's import capacity could be raised to as high as 700,000 barrels in case there is a permanent customer. In June 2005 Iranian proposed to entail a 25-year swap agreement with Russian companies, delivering roughly 300,000 bbl/d of oil at Neka and then receiving an equal amount of Iranian light crude at Kharg Island in the Persian Gulf. This agreement has not been signed. Iran is also developing its Tabriz and Tehran refineries so that they can refine up to 500,000 bbl/d of Caspian crude oil. In late 2004 price differentials between Caspian sweet and Iranian sour crude have rendered these swaps less

economic than during the summer of 2004, and Russian and Caspian producers sent their oil westward to Europe instead of sending it to Iran. Since then, swap levels have dwindled to 35,000 bbl/d during the winter of 2004-2005 and have now increased slightly to 80,000 bbl/d. This is still about 30,000 bbl/d less than the peak swap volume recorded earlier during the summer of 2004.

3.3.3. Northwards Pipeline Routes

For its part, Russia has proposed multiple pipeline routes that utilize its existing and proposed infrastructure. Shortly after independence, two new northwesternly pipelines were constructed, known as the "Northern" and "Western" Early Oil Pipelines. These extention from Baku to Novorossiysk (Russia), and Baku to Supsa (Georgia), respectively, and have a combined capacity of roughly 245,000 bbl/d. Also, an existing northbound pipeline from Atyrau in Kazakhstan to Samara in Russia has been upgraded, but is expected to become relatively less significant as throughput at CPC increases. However, there are political and security questions as to whether the newly independent states of the former Soviet Union should rely on Russia (or any other country) as their sole export outlet, and Caspian region producers have already expressed their desire to diversify their export options.

3.4. The Caspian Sea Dispute

The legal status of the Caspian Sea, its navigation, fishing and environmental problems have a major challenge to be solved since the break up of the Soviet Union. The main problem of this issue is to judge whether the Caspian Sea is sea or lake, in other words, whether it should be divided up between five littoral states establishing equidistant lines from their share to the shore or whether they should jointly own and share development of its vast oil and gas resources. Legal issues surrounding the

Caspian Sea's resources revolve aroud whether development rights are governed by traeties signed between the former Soviet Union and Iran (which did not establish seabed boundaries or discuss oil and gas exploration), and whether the Caspian is a body of water affected by the Law of the Sea (in land lakes are not covered by this law).[101] If the Law of the Sea convention applied to the Caspian Sea, full maritime boundaries of the five littoral states nordering the Caspian would be established based upon an equidistant division of the sea and undersea resources into national sectors. If the Law is not applied, the Caspian and its resource could be developed jointly. The five littoral states have set up a Caspian Center in Baku to coordinate efforts to resolve these disputes.[102]

At present there are three approaches to the defination of the legal status of the Caspian Sea. According to the first point of view, condiminium approach, the Caspian Sea is to be recognized as a frontier lake and hence to be divided into equal sectors (including seabed and water surface) between the Caspian states. Each sector must be under the absolute jurisdiction of the corresponding littoral state. The second approach is to apply to the Caspian Sea, having taken into account its peculiarities, the norms of international sea law, the UN convention on Sea Law (1982) in particular. It supposes to define for each states territorial sea, its fishing zone, and to recognize the remaining part of the water surface as the open sea. As to the bed of the Caspian Sea, it should be divided into equal parts belonging to the littoral states. The last appraoch is that the Caspian Sea is a unique reservoir and many of its

[101] Bölükbaşı, Süha; "The Controversy over the Caspian Sea Mineral Source: Conflict Perceptions, Clashing Interests", Europe-Asia Studies, May 1998, pp.397-414.
[102] Yolbars, A. Kepbanow, "The New Legal Status of the Caspian Sea is the Basis of Regional Cooperation and Stability", Perceptions, December 1997-February 1998, pp. 42-58.

characteristics cannot be regulated by existing international legal norms and practices.[103]

Azerbaijan has called for the Law of the Sea to be applied, and has advocated the establishment of maritime boundaries into national sectors based along median lines. Boundaries would follow those established and recognized under the Soviet Union to delinate republic sectors for oil exploration and development. Currently, there is a dispute between Azerbaijan and Turkmenistan over where to draw median lines, and Azerbaijanian has objected to the Iranian decision to award Royal Ducth/ Shell and Lasmo a license to conduct seismic surveys in a region that Azerbaijan considers to fall in Azeri territory.

Kazakhistan has supported Azerbaijan's view for the establishment of national sectors, but states that cooperation on the environmet, fishing and navigation would be beneficial. In 1997, Kazakhistan signed a communiqué with Turkmenistan pleding to divide their senctions of the Caspian along median lines, and in July 1998 Kazakhistan signed bilateral agreement with Russia dividing the northern Caspian seabed along median lines between two countries. Both of these agreements are interim until the status of the Caspian Sea is settled between all of the littoral states.

Iran insists that regional treaties signed in 1921 and 1940 between Iran and the Former Soviet Union are valid, and wants all Caspian littoral states to approve any offshore oil developments until the legal status of the Caspian Sea is agreed upon by all of the littoral countries. The Kazakhistan-Russia agreement was rejected by Iran as it was not valid or officially was recognized by Iran. Iran and Tukmenistan issued a joint statement in july 1998 stating that they hoped to see the costal zones divided into national sectors, with the middle of the Caspian Sea subject to common

[103] Kepbanow, p.45.

ownership. Iran has indicated a willingness to divide the Caspian into national sectors, provided that there is an equal division of the Caspian Sea so that the Caspian Sea would be divided into five equal parts of 20 percent each.[104]

The Russian possiton has varied over time. Russia initially argue that neither the Law of the Sea nor its precedents were applied because the Caspian Sea is an enclosed sea , and treaties between Iran and Russia are valid. After that, Russia called for joint navigation rights, management of fisheries and environmental protection, and the establishment of an interstate committee of all littoral states to license exploration in an joint-use zone in the center of the Caspian beyond a 45-nautical-mile exclusive national zone, and a joint corporation of these states to exploit these resources. Two years later from this statement, in 1998, Russia signed a bilateral agreement with Kazakhistan but not ratifed by the parliaments of either country. Nowadays, Russia is trying to maintain common ownership over the Caspian Sea and its natural resources and by that means control its own national sector as well as the national sectors of the other littoral states. The main aim is to prevent Western companies from penetrating the Caspian region, thus preventing the spread of western influence in Caucasus and Central Asia.[105]

Turkmenistan's position is still evolving. It initially supported Russia's proposal for 45-nautical-mile zone. In the course of time, Turkmenistan has changed its position. In 1997, the President of Turkmenistan and Kazakhistan signed a statement calling for a division of the Caspian Sea based upon Soviet era division until the littoral states agreed upon a new status for the Caspian.

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[104] Clawson Patrick, Iran and Caspian Basin Oil and Gas", Perception, December 1997, Available at: http://www.sam.gov.tr/perceptions/Volume2/December1997-February1998/clawson.PDF (Visited on: June 03, 2006), p.4.
[105] Yolbars, A. Kepbanow, p 47.

CHAPTER IV

4. A NEW IDENTITY: AN ENERGY CORRIDOR

4.1. Turkey's Energy Policy: A Transit Country

The adventure of the Turkish Republic for the energy policy, actually, started with the discovery of the first oil deposit in the Middle East and the drilling of the first well in the Ottoman age, in the 19th century. In the exploration process of the next oil field the role of governence of the Turks empire was controversial because of first international oil companies, for instance Standart Oil and Royal Dutch/Shell, had had more influence over the region local administrator and power of the Ottomans more or less was run out.[106] Nonethless, existency of the oil reserves, ironically, one of the reason of why the empire was diveded and collapsed. For the Ottoman geopolitics perspective, the Middle East resources was not only unique focal point, additionally the Baku's oil deposits were improtant for the Ottomans and its ally Germany, at the preparation period of the WW I. However, defeat in the WW I killed the energy perspective of the Ottoman Empires.[107]

The successor of the Ottoman Empire, the Republic of Turkey, at its early years, was wise enough to not get involved in the power struggle for the region's oil reserves. After the foundation of the new republic in six, and seven decades, energy startegy of the country had been prepared to meet its requirement by considering domestic sources. Discovery of the oil deposit in the Southwest in 50s created some excitement. However, out put of the region was just at modest level (around 4.45 million tons a year) far below the oil requriements of the country.

The 70s created new objectives for Turkey as well as the rest of the western world whose resources were not enough to meet their demand. Oil crises of the 70s

[106] Uluğbay, Hikmet;2003; Petropolitic (Petropolitics). Ankara: Ayraç Yayınevi; p.68.
[107] Yergin, Daniel; p. 180.

and skyhigh oil prices, caught Turkey off balance and caused the worst economic crisis in its history. Turkey was severely affected by the oil price increasing in 1973. During the years following the first oil crisis, economic conditions deteriorated, with high unemployment, a nearly five fold increase in the balance of payments deficit between 1973 and 1979, large external dept and annual inflation rates exceeding 100 percent in 1980.[108]

In the same year of the first oil crisis, a historical step taken by Turkey to overcome the hazardous affect of the oil prices and became one of the member of the IEA which was established as a response of the West to OPEC actions. Although it was a founding member of the IEA , Turkey hesitated for a long time before formally ratify the agreement. There were two reasons behind her hesitation and more or less passive participant in the work of the IEA without really contributing to its policy formulation function for its members as a whole. The first reason was the relationship with Iran and negotiations for the construction of a pipeline between Iran and Turkey's Iskenderun port on the Mediterranean. The second was approximately had same foundation, at that time Turkey and Iraq were negotiating to build a pipeline from Kirkuk (Iraq) and Yumurtalık (Turkey). Neverthless, these two projects were the indicators of the metamorphosis of the Turkey's energy policies. Turkey started to become a bridge between the hydrocarbon-rich east and huge energy market of the West thanks to construction of the these pipeline projects that would also provide the supply security of Turkey.

The year of 1990 can be called as a corner stone for the Turkey's energy policy as well as foreing policy. At the beginning of 1990s the winds of change were carrying the new opportunuties, possibilites and chances as well as new threats,

[108] Energy Policies of the IEA Countries Turkey 2001 Review ; IEA BOOKS-OECD/IEA; 2001; Paris; Availble at: <http://www.iea.org/textbase/nppdf/free/2000/turkey2001.pdf> (Visited on: May 11, 2005) p.14.

destruction and problems. There were incredible disorder all over the world and Turkey was in the center of this turmoil. At the beginig of the last decade of the 20th century, a 50 year polarized world was over and new age opened up under the name of Age of Globalisation. The collapse of the Soviet Empire was followed by some regional conflict, disputes and even war. In the eastern border of Turkey the struggle between Armenia and Azerbaijan became more intensified, in the west, the demise of the Yugoslavia caused etnich and religious conflict between the component of the former federation. In the south border, the invasion of Kuwait by Iraq and the first Gulf War damaged Turkey both economically and politically. On the other side, collapse of the Iron Curtain would open up new way and create opportunuties for Turkey. After 1991 Turkey could make relationship with nations of the Central Asia and Caucasus. Nevertheless, the value of Turkey reduced the first years of the 90s due to ending of the Soviet threat. Throughout the Cold War Turkey was pecieved as a buffer zone against the invasion possibilty of the Soviets.

New opportunites and new dangerous emerged, and in the year of 1990 Turkey entered new landscape as well as the world. National and common energy policies and attainment of the energy resourcer are the core of the this new world.

An energy policy for Turkey! As a developing country, Turkey's economy is requiring to grow new raw materials and on the other hand, limited indigenous natural resouces oblidged her supply its demand by buying from external resources. Therefore, energy policy of Turkey have direct links with her foreing policy. The density of Turkey's demand from the outside, which means that 65 percent of the total primary energy consumption, needs a supply of energy from surrounding regions and countries. Therefore, Turkey's relations with the countries which imports its energy is a critical issue in terms of foreign policy. In addition, Turkey's

geopolitical location is one of a crossing state for the countries with energy resources to export. Thus, the issues of energy security, energy diplomacy and a national energy strategy in Turkey's foreign policy concern not just for Ankara, but also for many related countries.

Since the collapse of the Iron Curtain, Turkey's energy policy was reshaped. Its national energy policy consists of three components. First one is the energy diversity. It means that, diversificaiton of the energy sources and exporting countries in order to avoid dependent on one country's reserves. In other words, to ensure that Turkey is not absolutely dependent on any one country for more than 35-40 percent of its energy. The best and the most freshest example of this situation is the gas war between Ukraina and Russia on first day of 2006. Turkey should take lesson from this disputes because her 65 percent of the total natural gas comes from one country, Russia. Moreover, in 2005, Turkey's gas exporting from Iran was stopped by this country without any information. The second one is to ensure a sustainable, high-quality and cheap energy supply. Finally the third is to function as a bridge of energy by maintaining the country's geopolitical opportunities. For the last five years, Turkey has spent more important effort in order to implement this policy. The Baku-Tiblisi-Ceyhan pipeline, or East-West, North-South pipeline projects crisscrossing Turkey, are the results of this policy.

The last one,nowadays, is the most important part and aim of the Turkey's energy policy and has two dimesions which are as follows;

- In order to diversify and guarantee its requirements
- regain its importance which reduced after the end of the Cold War for facilitating accession to the EU.

This aim of Ankara is clearly explained by the Prime Minister of Recep Tayyip Erdoğan and he stated that " one of the main factors of Turkey's energy strategy is making use of its geography and geostrategic location by creating a corridor between countries with rich energy resources and energy consuming countries." [109] As B.Shaffer puts that "as part of its drive to serve as a significant energy transit state, Ankara has signed a number of important agreements in the last decade with neighbouring natural gas producers, inagurated the BTC oil pipeline project, lauched the Baku-T'bilisi-Erzurum natural gas pipeline, and is exporing additional projects."[110] In the age of sky-high oil prices, the role of transit states has become particularly vital, and their status in the international arena has increased. Sustained high oil prices have rendered oil production in many geographically and geologically challenging places, such as landlocked countries. Turkey borders a significant number of landlocked energy producers in the Caspian Sea region. Turkey is viewed by the energy producers of the region as a prefered transit state. Moreover, dramatic rise in the use of natural gas also have new opportunuties both producer and transit countries. The increase in natural gas consumption and export of oil from landlocked states has led to a number of energy pipeline projects that directly linked some producers and consumers and to the emergence of new regional alliances that are linked by energy infrastructures.[111]

In the last ten years of the 20th century, Turkey has joint and undertaken a number of major infrastructure projects for its rising national energy demand and to position itself as an energy hub for export to additional markets. Transit tarrifs are not very lucrative, such as Turkey's profit is going be just $300 million per year

[109] Shaffer Brenda; "*Turkey's Energy Policies in a Tight Global Market"* ; Insight Turkey; Volume 8 / Number 2 April-June 2006; p 97.
[110] Ibid; p.97.
[111] Ibid; p.101.

from the BTC. On the other hand, the main adventage of becoming an energy bridge is political one. In order to create an effective and really lucrative energy policy security and foreing policies must be integrated with countries energy policy. However, Turkey has not coupled its policies for building energy transit infrastructure with a robust policy of translating that transit role into political gain.

Moreover, as B. Shaffer puts that "Turkey has not made comprehensive decision on supply sources a necessary condition for developing its future political role from its transit capacity. Turkey must weigh the benefits and cost of either serving as an EU level against Russia or as a Russia's route for more imports into European markets. Ankara must decide on the role of Russia and energy supplies that are easily controlled by Russia in its energy import basket. On the one hand, to both guarantee its own energy security and play a role in diversifying Europe's energy supplies, Turkey needs to import more energy from states other than Russia of those that are easily controlled by Russia."[112]

In contrast, since the establishment of new kind of energy diplomacy with Russia Turkey has gained an enormous politic and economic benefits. Initially, Turkey guarantee its natural gas requirement and diversify its sources. Nevertheless, dependency of Russia on the natural gas export goes too far. In 2005, the share of natural gas in Turkey's electricity production was 44 percent and 23 percent of the total energy consumption, and unfortunatelly, the share of Russia reached two-third of the total consumption. In other words, Russia supplies Turkey's more than 60 percent of total natural gas demand. Another negative dimesion of the relation with Russia is about take-or-pay natural gas contracts that led to over supply. Moreover, Turkey has no opportunity to sell this over supply to third parts due to the contracts.

[112] Shaffer Brenda; p 102.

Turkey operates also contracts with Iran, Algeria and Nigeria besides Russia. Turkey may be required to pay penalties in the future to suppliers, such as Russia and Iran, if it can not use or re-export all the natural gas that it has committed to import. Turkey has to negotiate its contracts in a way that accommodates major contigiences that affect energy demand, such as macro economic decline, war, and catastrophic, large scale illness. Morover, Turkey needs to structure its natural gas storage facilities in near future.

The liberalisation of the energy markets of Turkey is also dominating her agenda. Turkey has embarked on the liberalization of the energy sector in line with the EU directives. The turning point in energy markets occurred in 2001, when two laws were enacted to end the state's monopolies in power and natural gas. This was followed by a series of other laws on the electricity market licenses (2002), oil market (2003) and renewable energy (2005). The massive restructuring through legal and institutional arrangements in the electricity[113], oil and natural gas sectors encourage new and competitive investments. Further, privalizations in electricity and natural gas distribution as well as power generation offers great potential for foreign companies due to lack of expertise and references on the part of Turkish companies. For instance, German EON Energie, Italian Enel and American AES are among companies which are closely following the tenders in electricity. The energy sector generates significant investment opportunities due to the following three factors:

1. The country's growing energy demand,

[113] Hoekman, Bernard M. (ed.),2005, "Turkey Economic Reform and Accession to the European Union, Compitationand Regulatory Reform In Turkey's Electricty Industry, Available at: <http://siteresources.worldbank.org/INTRANETTRADE/Resources/Pusbs/Turkey_BHoekman&Stogan_book.pdf#search=%22Turkey%20economic%20reform%20%26%20accession%20to%20the%20Eu%22> (Visited on: July, 30, 2006) p. 188.

2. Its role as a transit country, and

3. Market liberalization.

Driven by strong population growth, urbanization and economic expansion, the energy consumption more than tripled in the 1980s and 1990s, and recent surveys have suggested that until 2020, the oil consumption is expected to increase two fold, and gas consumption four fold. A liberalization of the energy sector coupled with the energy demand foreseen to grow at an average over 8% annually through 2020 offer great opportunities for energy generation and equipment providers. In the planning work conducted, a total of 4,500 MW nuclear power plants need to be put into operation as of 2012.

Despite having more than one aspects, today's and possible pipeline infrasturucture is the main component of the Turkey's energy policy to determine country's economic and interantional politics conditions.

4.2. Energy Profile of Turkey

Turkey is at the cross roads of several volatile, strategically and has economically important regions, including the awkward triangle of the Middle East, Cenral Asia and Caucasus. Now with its economy the world's 17th largest country and approximately there are 70 million people, so Turkey's energy needs are increasing quickly. However, as Brenda Shafer puts out " like close half of the world's states, Turkey possesses few sources of energy, importing approximately 90 percent of the energy that it consumes. Turkey produces small amounts of oil and poor quality coal, marginal amounts of natural gas, and no nuclear energy at this stage. In April 2006, Ankara announced its decision to establish its first nuclear power station, which will be built in Sinop, and launched a search for funding and an appropriate company to

build the reactor, which is intended to become operational in 2012. Turkey produces a robust amount of hydroelectricity and has the potential to increase hydroelectric production. In addition, Turkey produces very small amount of renewable energy sources and is in a position to increase production of wind, geothermal, and solar power production, if it promotes the appropriate policies. Turkey's total primary energy supply is comprised of: oil 38 percent; natural gas 23 percent; coal 27 percent; combustable renewables and wastes 7 percent. The remainder comes from hdroelectric power, geothermal energy, and additional renweable energy sources."[114]

Turkey's total final energy consumption has grown rapidly in the last decade. Turkey's gas demands during 1990's had been growing at 10 percent a year, and by the year 2008 these demands are expected to quadraple to 50 billion cubic meters. Oil needs are similarly urgent, with predictions that 22 million tons will have to be imported annually by 2010. In spıte of the severe economic difficulties in 2001, Turkey's energy consumption and net imports had been growing rapidly.

Due to implication of more liberal policies since mid-80 Turkey's economy has entered an progress period and naturally its energy consumption had sharply increased. Despite Turkey is surrounded by the world largets energy rich regions, it can be called as an energy poor country. Turkey lies adjacent to countries or regions possessing some 73.4 percent of the world proven gas reserves and some 76.1 percent of the world proven oil reserves.[115] As a net importer, and itself a major market for producers Turkey's importance lies in it's ability and its willigness to develop a major transit systems for gas as well as oil, enabling hydrocarbon resources to access European markets by pipeline routs from such diverse region around Turkey, such as the Middle East, the Caspian Region or Central Asia.

[114] Shaffer, Brenda; pp. 97-104.
[115] Putting the energy in the spotlight, p. 14.

This quick growing is also observed in the Turkey's oil sector which provides aproximately 40 percent of Turkey's total energy requirements. However, its share is decreasing because of the growth of the natural gas consumption. The major Marmara Earthquake and economic crisis of 2001 interrupted and stopped increase in trend for oil. During 2002, for instance, Turkish oil consumption and imports were down approximately 30,000 barrels per day (bbl/d) from 2000 levels. In the long-run, Turkish oil demand and imports are expected to resume steady growth (during 2004, Turkish oil demand increased by about 30,000 bbl/d, to around 685,000 bbl/d). According to ministry of energy in Turkey, 24 096 407 tons of oil exported and 2 375 044 tons produced by indigenous resources and oil expense, in the same year, reached 6 billion dolar.[116]

Altough it is surrounding by the world most hydrocarbon richest regions reserves, Turkey are insuffcient to meet its demand. Tukey's oil production is around 1.6 million tonnes and constitutes only around 5 percent of its oil consumption. Proven oil reserves are very low. This creates an import-dependency and when oil prices are rising, as they are now, there is inevitably an impact on the economy commensurate with magnitute of price.[117]. Turkey's main oil suppliers are Saudi Arabia, Iran, Iraq, Syria and Russia. The share of the Caspian oil in the Turkey's energy market is growing and will continue thanks to constructed and projected oil pipelines.

Turkey's domestic energy production, distrubution and energy transit infrastructure are still predominantly in the hands of state-owned companies. Three companies account for the majority of Turkey's oil production -- the Turkish State

[116] Turkey's oil consumption, Ministry of Energy, Available at:<http://www.enerji.gov.tr/ petrolarztalep.htm> (visited on: June 12, 2006).
[117] Işık, Yusuf; Turkey's Energy Prospects in the EU-Turkey Context; EU-Turkey Working Papers, Centr For European Policy Studies; No. 9/October 2004; Available at : <http://shop.ceps.be/ Book Det ail.php?item_id=1163> (visited on: March, 23, 2006), p. 6.

Petroleum Company (TPAO), and foreign operators Royal Dutch/Shell (Shell) and ExxonMobil. Smaller companies include Petrom of Romania (produces around 2,600 bbl/d in the Selmo block) and Aladdin Middle East (480 bbl/d in Siirt and Gaziantep). Only TPAO accounts for about 80 percent of the country's total oil output (currently around 43,000 bbl/d, down from 90,000 bbl/d in 1991). Turkish oil fields are generally small, and scattered around the country. Oil fields in the country's southeast (specifically the Hakkari Basin, Turkey's main oil producing area) are old and expensive to exploit. In addition to the Hakkari Basin, Turkey contains oil prospects in its European provinces, in the Black Sea shelf region, and in other oil basins in southern and southeastern Turkey. Potential oil reserves in the Aegean Sea have not been explored due to conflicting Greek claims over the area. In December 2003, TPAO stated that it was planning large-scale exploration for oil and gas in the Black Sea, Mediterranean, and Aegean Seas (plus southeastern Turkey).[118] Since 1961, only 1,227 exploration and appraisal wells have been drilled and 103 oil field and 28 natural gas field were found in Turkey. Total production of these fields are just 123,4 million tons oil and 7,4 billion cubic meters. At the same time, in 2005, Turkey's total producable oil and gas reserves were estimated at 39,2 million tons and 6,8 billion cubic meters, respectively. Turkey's investments on oil production projects abroad are growing considerably. The TPAO investments abroad grew almost by a factor of ten in three years, from $55 million in 2001 to $519 million in 2004. TPAO's main ventures abroad are in Azerbaijan. For instance, TPAO holds a 6.75 percent share the Azerbaijan International Operating Company (AIOC) and 9 percent share in the Shah Deniz project. In addition to Azerbaijan, TPAO has also

[118] Enenrgy Information Administration;June 2005; Country Analysis Briefs-Turkey, Official Energy Istatistic from US.Government Available at: http <http://www.eia.doe.gov/emeu/cabs/turkey.pdf > (Visited on: June 17, 2006), pp.2-3.

invested in Libya and Kazakhstn and is exploring ventures in Turkmenistan, Iraq and Syria[119]

Turkey has important oil refining capacity, and it is an exporter of refined oil products. Refining and other downstream operations in Turkey are dominated by partly-state-owned company Tupras, which has four main refining complexes: Batman in the southeast, Aliaga , Izmit, and the Central Anatolian Refinery at Kirikkale. A new refining complex is planing to be constructed in the Yarımcaada in 2007. Turkey's only private refinery is Atas, with a capacity of 88,000 bbl/d, located near Mersin on the Mediterranean coast, a joint venture of ExxonMobil (51 percent), Shell (27 percent), BP Amoco (17 percent), and local company Marmara Petrol ve Rafineri Isleri AS (5 percent).[120] If Turkey's energy consumption continues to grow, refining capacity will need to expand to meet demand. One-third of the refined oil productions are sold to OECD states and another third to Middle East.

Turkey is a rapidly growing importer and consumer of natural gas, due to the fact that it is surrounded by major gas-exporting countries in the Middle East and Central Asia, and interstate natural gas transport infrastructure leading to Turkey continues to be developed. Natural gas consumption levels in Turkey have witnessed a dramatic increase, from 150 Bcf in 1991 to 748 Bcf in 2003. 65% of this consumption is allocated to the Turkish power sector, as Turkey's accelerating development results in greater demand for energy.[121] With current natural gas pipelines and import contracts from Russia, Iran, Algeria, and Nigeria, and soon from Azerbaijan, Turkey is currently importing approximately 1.1 Tcf of LNG per year; and is expected to increase to 1.8 Tcf by 2010. According to BOTAŞ figures, in 2005; 12.301 Million cum of natural gas was imported from the Russian Federation,

[119] Shaffer, Brenda; p.100.
[120] Country Analysis Briefs-Turkey, p.9.
[121] Country Analysis Brief-Turkey, p.10.

and also 555 Million cum of Russian gas was imported through TURUSGAZ and 4.969 Million cum of naturalgaz from the Black Sea, 3.851 Million cum and 1.030 Million cum of natural gas equivalent of LNG was imported from Algeria and Nigeria, respectively. Also 4.322 Million cum gas was imported from Iran. The total import volume reached 27.167 Million cum. 26.865 Million cum of natural gas was sold to the power, fertilizer, industrial, residential and commercial sectors in 2005.[122]

By 2010, over 31 percent of Turkey's gas imports are to be supplied from Russia via the Black Sea, more than 27 percent from Russia via Bulgaria, about 19 percent from Iran, about 13 percent from Azerbaijan, and the remainder from Algeria and Nigeria. Under the "take-or-pay" provisions of natural gas supply contracts with countries like Iran and Russia, Turkey theoretically could be forced to pay cash penalties of up to $1 billion per year if it fails to purchase contracted gas. In this context, Turkish energy officials have discussed the possibility of storing surplus natural gas in underwater depots beneath the Sea of Marmara or under the Salt Lake (Tuz Golu) in central Anatolia.

Natural gas is becoming an increasingly significant source of energy. The share of natural gas of total world energy consumption is forecast to rise from the current 23% to 28% by 2025. Natural gas is generally regarded as a low cost, clean in form of energy. It is being used more and more for electricity generation through efficient and inexpensive gas turbine systems. Turkey is not a major natural gas producer and does not have significant reserves. Turkish industrial and household users are thus dependent on natural gas imports. Natural gas sale and purchase agreements have been included with Russia. Turkey is contracted to receive 30 billion cubic metres per annum (bcm/y) of natural gas from Russia by 2010. Of this amount, 16 bcm/y

[122] Turkey's Natural Gas Reserves, Turkey Petroleum Pipeline Cooperation, Available at: <http://www.botas.gov.tr/eng/naturalgas/ng_trade.asp> (Visited on: July 11, 2006).

will be delivered by the Blue Stream project, which involves the use of twin parallel pipelines laid across the Black Sea. Turkey is also contracted to receive up to 10 bcm from Iran by 2007.

Sale and purchase agreements have also been finalised with Azerbaijan and Turkmenistan. The first gas from Shah Deniz is expected to arrive in Turkey in 2006 after the Baku-Erzurum pipeline is completed. By 2009 Turkey will be consuming 6.6 bcm/y of natural gas from Shah Deniz. Officials in Ankara have committed themselves to import 16 bcm/y of gas from Turkmenistan once this gas reaches the Turkish border. This will not be possible in the foreseeable future, though, because of the collapse of the Trans-Caspian Gas Pipeline Project, which had planned to lay a pipeline under the Caspian Sea. The Turkmen authorities appear to be more interested in selling their gas to markets in Russia and Ukraine, and possibly eventually to Pakistan and India. It is important to note that the Baku-Erzurum gas pipeline will not have spare capacity to carry Turkmen natural gas to Turkey. Turkey also imports 4 bcm/y and 1.2 bcm/y of LNG from Algeria and Nigeria respectively.

Turkey has hard coal (anthracite and bituminous) reserves of around 1.1 billion short tons, plus lignite reserves around 8 billion short tons. Around 40 percent of Turkey's lignite is located in the Afsin-Elbistan basin of southeastern Anatolia, while hard coal is mined only in one location the Zonguldak basin of northwestern Turkey. Turkey's state-owned coal company, TTK, produces, processes, and distributes hard coal, while Turkish Coal Enterprises produces most of Turkey's lignite.. Turkish coal, which is used mainly for power generation, is generally of poor quality and highly polluting.

According to figures from the IEA,in 2003, Turkeys total electricity consumption was 110364 GWh. Most of the production were supplied by

hydrocarbons coal (32253GWh), oil (9197 GWh), an the biggest part natural gas (63535 GWh) and, on the other, hydro electricity (35330 GWh)[123]

Turkey's theoretical hydroelectric potential is 1% of that of the World and 16% of that of Europe. The gross theoretical viable hydroelectric potential in Turkey is 433 billion kWh and the technically viable potential is 216 billion kWh. The economically viable potential, however, is 127 billion kWh. At present Turkey has 135 hydroelectric power plants in operation with total installed capacity of 12,631 MW generating an average of 45,325 GWh/year, which is 36% of the economically viable hydroelectric potential. Forty-one hydroelectric power plants are currently under construction with 3,187 MW of installed capacity to generate an average annual 10,645 GWh representing 8% of the economically viable potential. In the future, 502 more hydroelectric power plants will be constructed to be able to make maximum use of the remaining 71,411 GWh/year of economically viable potential. As a result of these works, a total of 678 hydroelectric power plants with 36,260 MW will tame rivers to harness the economically viable hydropower of Turkey

4.3. Energy Bridge Between East and West

It is possible to say that, energy and sources of energy are directly related with the countries and regions destiny. For example, the unstabilty and undemocratic regimes in which the Middle East are the fruits of the regions rich energy resources. The war in Iraq, who possesses the second largest oil reserves and huge amount of natural gas reserves, directly related countries energy resources.[124] While undemocratic regime in Iraq was fall over under the name of democratization, regions other dictatorialship regimes, such as the Kingdom of Saudi Arabia and Kuwait are supported by the

[123]Energy Policies of the IEA Countries Turkey 2001 Review, p.85.
[124] Roberts, Jhon, 2004, " The Turkish Gate, Energy Transit and Security Issues" Working Paper, EU-Turkey Working Papers No.11 EPC, Available at: <http://www.isn.ethz.ch/pubs/ph/details.cfm?lng=en&id=20720>, (Visited on: June 11, 2006), p. 8.

representatives of the modern democracy. At the same time, the newly independent states of the Caspian Sea Region and the Central Asian states use their natural resources as a device in order to obtain their economic and politic independencies. On the other side, these regions' natural resources are percieved as a tool by Russia who aimed regain its power over the ex-colonies. Russia choose the method of economic pressure by using landlocked character of the region's countries. Especially, within the part of the region energy resources and their revenues are the main components of the countries foreign policies. Another example is the Russia-EU dialogue. In the concept of the supply security, Russian natural resources are highly vital for the import-dependent European countries. Dependency on the external resources limits the EU's action area in the international scene and it become more heavy due to the last enlargement that contain mostly Central and Eastern European states whose dependency on Russia's initiative more higer than the west. Like in the east, Russia uses energy as a weapon to reconstruct influence over the western-oriented former Soviet republics. The last and most clearest evidence is the war on the natural gas between Ukraine and Russia on first January, 2006.[125] Russia did not avoid to turn off the natural gas tap as a punishment. In the European Union, which aimed to establish supranational character and more federal structure under the union framework, national interests of the members sometimes can surpass communities interests, such as the German-Russian agreement on the pipeline project which bypass the Baltic States and the Eastern members of the Union and increased the Russian influence over the region because the pipeline infrasturucture balanced relations with Russia.

[125] Stern, Jonathan, 2006, "The Russian-Ukranian Gas Crisis of January 2006", Working Paper, Oxford: Oxford Institute For Energy Studies, Available at: <http://www .oxfordenergy.org/pdfs/comment_0106.pdf>, (Visited on: July 23, 2006), p.7.

Being an hydrocarbon rich country or just rich country, neither of these identificates Turkey situation. In spite of the surrounded by the world's largest oil and gas reserves, Turkey can not meet its demand by indigenous reserves and is an import-dependent country. At the same time, as a developing country, its treasury does not have full of money. Nevertheless, Turkey has an important features thanks to its georaphic condition. As it was mentioned before, Turkey bordering on the Middle East, Russia and the Caspian Sea is adjacent to regions that have over 70 percent of the world's procen petroleum and natural gas reserves. At the same time, Turkey is a neighbour of the world's second biggest energy market "the EU" and applied for the membership. Third adventages of Turkey is proximity of the world's major international waterways. These three factor predispose Turkey to become an important transit state for world energy resources.

Turkey's role as a gateway through which oil and gas entered the EU is becoming increasingly important as the EU grapples with the interrelated problems of ensuring energy security and the provisions of energy supplies from multiple sources at competitive prices. A net importer, and itself a major market for regional producers Turkey's importance lies in its ability and willingness to develop major transit systems for oil and gas, thus enabling hydrocarbon resources to access European market by pipelines from such diverse regions as the Caspian Sea, Central Asia, the Gulf, and the eastern Mediterrenean.

4.3.1. Baku-T'bilisi-Ceyhan Pipeline

On May, 28th of 2006, the first crude oil arrived at the Ceyhan port of Turkey on Medditerrenean and a new age opened for participant of the pipelines as well as Caspian region states. The fate of Central Asian and Caucasian oil under Russia's control until now was changed when Azerbaijani produced oil in the Caspian Sea

was pumped to Ceyhan through the BTC. It wouldn't be a far-fetched assumption to say that not only the fate of Caspian oil but also the fate of Caspian countries was changed.[126] For the last 15 years, strategists have been preoccupied with how Russia, which has been increasingly using its oil and natural gas as a political weapon, would act in delivering Caspian energy resources to the world market and whether it would place countries of the region in a difficult situation, in such a situation where a pipeline such as the BTC did not exist[127].

In November 1999, Azerbaijan, Georgia, and Turkey signed agreements affirming the BTC route as the Main Export Pipeline for Azeri oil exports. The pipeline is projected to start from the Sangachal Terminal Station, near Baku, and would in Ceyhan via Georgia, following the Erzurum-Erzincan-Kayseri route. At the beginning, the Turkish option for structuring pipeline was the most difficult because the pipeline should pass through the mountains locality. In addition, its cost was more than the other routes. On the other hand, BTC route had an advantage, direct access to the Mediterranean for the filling of Tankers. When the Ceyhan and Novorosisyk, which is port of Russia on the Black Sea and was alternative of the Ceyhan, compared the superiority of the Ceyhan is easily understood. Ceyhan can handle the largest tanker in service, far larger than the size that can navigate the Bosphorus, and has four times the capacity of Novorossiysk. 130 million tons a year versus 32 million tons.[128]

The B.T.C. pipeline connects the Azeri-Chirag-Gunashli oil fields to Turkey's Mediterranean port city Ceyhan through Baku, Azerbaijan, and Tbilisi, Georgia. As

[126] Piskur, Michael, 2006, "The BTC Pipeline and Increasing Importing of Energy Supply Routes", Available at: <http://www.pinr.com/report.php?ac=view_printable&report_id=537&language_id=1>, (Visited on: June 30, 2006).
[127] Külebi, Ali; Pipeline and Seaport Security. Availeble at: http://www.tusam.net/makaleler.asp?id= 601(Visited on: July 03, 2006).
[128] Karagiannis, Emmanual; Energy and Security in the Caucasus, London; 2002;p.30

the world's second longest pipeline at 1,740 kilometers (1070 in Turkey), the majority of which is far underground, and with a path that traverses a politically unstable region, the B.T.C. pipeline has been criticized for being prone to sabotage or malfunction. Western leaders, however, hail it as one of the most important projects of the 21st century. The World Bank's International Finance Corporation and the European Bank for Reconstruction and Development funded the $4 billion project. Energy company BP is the main operator and controls a 30.1 percent stake in the pipeline. Other major contributors include State Oil Company of Azerbaijan (S.O.C.A.R.), American firms Unocal Corp. and Chevron, Norway's Statoil, Turkish state oil firm T.P.A.O., and Italy's Eni SpA.

4.3.2. Turkey-Greece Natural Gas Pipeline

Turkey-Greece Natural Gas Pipeline Project is developed as a result of the studies undertaken for the interconnection of natural gas grid of Turkey and Greece and creation of South Eastern Gas Ring. The economic feasibility study of the Turkey-Greece Natural Gas Pipeline Project was conducted by Société Générale with equal financial supports of EU-TEN Funds and DEPA. On 28 Mart 2002 in Ankara, the Director of BOTAS and DEPA of Greece have signed Memorandum of Understanding regarding natural gas sale and purchase, natural gas transmission to Europe and Balkans via Turkey and Greece and LNG swap between the companies. Also at the same date, the Ministry of Energy and Natural Resources of Turkey and Ministry of Development of Greece have declared joint press statement to confirm their joint will further develop the cooperation between the two countries in energy field focusing on the gas and electricity sectors. Intergovernmental Agreement was signed in Selanik by Energy and Natural Resources Minister of Turkey and Greek

Development Minister on 23 February 2003.[129] The project is taken to the first priority projects category of EU TEN Program. After the Feasibility and Engineering studies of the Project is completed., Natural Gas Sales and Purchase Agreement was signed on December 23, 2003 in Ankara, by the parties. Accordingly, the initial delivery volume by the line will be 750 Mcm and it is envisaged to increase to 11 Bcm in 2012 of which 8 Bcm for Italy market and the rest to Greece market. The line will be some 300 km long, of which 209 km is within The Turkish territories. First gas delivery will be decided in 2006. Meanwhile, natural gas delivery to Italy after Greece by an off-shore interconnection line became an important agenda item. Italian gas company Edison-Gas and DEPA has signed a memorandom and BOTAŞ is involving in this agreement upon the invitation. The pre-feasibility study of the project is completed. And also application for feasibility funding from the EU TEN Program is approved. DEPA and Edison-Gas have launched tender for the feasibility study of the project. Natural Gas Sales and Purchase Agreement of the Turkey-Greece NGLP that signed in December is attaching importance for Italy extention. As a realization of these studies Turkey-Greece Project is likely turn to be the Turkey-Greece-Italy Project.

4.3.3. Azerbaijan-Turkey Natural Gas Pipeline

The Shah Deniz Natural Gas Pipeline Project is aimed at transporting the natural gas produced in Azerbaijan via Georgia to Turkey. Negotiations which started in October 2000 for the supply of natural gas from Shah Sea in Azerbaijan were finalised in March 2001 and Intergovernmental Agreement was signed by Ministry of Energy and Natural Resources of Turkey and Deputy Prime Minister of Azerbaijan on 12

[129] Roberts, Jhon, p.12

March 2001. Natural Gas Sales and Purchase Contract was signed by BOTAS and SOCAR on the same date as well. According to the Contract; natural gas delivery for 15 years is going to start with 2 Bcm and reach 6.6 Bcm on the plateau period. Under the contract, the delivery point would be Turkish/Georgian border. BOTAŞ would be sole responsible for the construction and operation of the line within the Turkish territories while SOCAR would be the responsible one for the section Azerbaijan through Georgia. As a result of the contract ; it is determined that 225 km. long line would carry Azeri gas to intergate Eastern Anatolia Transmisson Line at Erzurum-Horasan. Prefeasibility studies of the Project was completed and tenders are to be launched for the construction of the line.[130]

4.3.4.Other Projected Connections

Turkey is also pursuing discussions with various other potential suppliers. The most important of these is, probably, Iran, since Tehran has already been discussing eventual deliveries of gas to Greece via Turkey, whilst EU officials have spoken of Iran as a long-term gas supplier to EU member states. Current agreements provide for Iranian deliveries to Turkey to plateau at 9.56 bcm/y in 2007, but as the line has the potential to handle double this volume, and as Turkey's own gas demand projections remain unclear, it seems likely that at least part of the line's capacity will be used to supply gas to the Turkish system that will subsequently be forwarded to other European markets. As mentioned previously, Turkish officials also continue to discuss with their Iraq counterparts what they call the 'Iraq Integrated Natural Gas Pipeline Project' by which they hope to see a Turkish-Iraqi consortium, embracing both the public and private sector, develop gasfields in northern Iraq and bring some

[130] Roberts, Jhon, pp.8-9

10 bcm/y into the Turkish system, again with a view to forwarding some of this gas to other European markets. But while Turkish officials say they have current backing for this project, which was first mooted in 1996, from the Iraqi Ministry of Energy and from private Turkish companies, this is a project that cannot be undertaken until there is a substantial improvement in security conditions in Iraq.

Turkish officials are also continuing discussions with Egypt. But although Egypt is currently extending its gas system northwards from Jordan to Syria, so that it would easily be able to effect deliveries to southern Turkey by building a few hundred kilometres of extra pipeline, whether there is a market has yet to be ascertained. The pipeline could obviously supply gas to the industrial and petrochemical markets of Iskenderun and southern Turkey, but Turkish officials remain uncertain as to whether local demand justifies such an extension to the Egypt-Jordan-Syria line. What does seem clear is that in due course this line will reach the northern Syrian city of Aleppo, for which Iskenderun was long the traditional port. There is therefore a real prospect that a relatively small-scale local transborder connection between Aleppo and Iskenderun might eventually form the basis of a more substantial connection. In considering whether this might happen, several factors have to be borne in mind. One is Egypt's own desire for new export markets. A small-scale entry into the Turkish market could prove the precursor of greater export sales - so long as these are competitive with Egypt's obvious alternatives: pipeline deliveries to Europe via a proposed connection to Libya and the Libya Italy "Green Stream" line, and development of LNG export facilities.

In addition, it is worth noting that Syria itself possesses significant gas reserves. But the most important factor of all is the fact that Saudi Arabia possesses major gas reserves in the northeast of the Kingdom, which could easily be connected

to the Egypt-Jordan-Syria-Turkey line. Saudi Arabia is not publicly contemplating raw gas exports but the existence of a proven export route, albeit one which would need considerable expansion to serve Saudi interests, could prove highly advantageous as and when the Saudi authorities decide to revisit the gas export issue.

As for Turkmenistan, Turkey continues to consider that it has an effective sale and purchase agreement with Ashgabat (it was signed a framework agreement for gas deliveries in October 1998) under which Turkmenistan would ultimately deliver as much as 20 bcm/y to the Turkish market. But since the Turkmens effectively decided in 2001 to reject a serious pipeline project that would have brought this gas to Turkey via Azerbaijan, the concept of large-scale Turkmen gas sales to Europe has, de facto, been in abeyance. Essentially, Turkmenistan President Saparmurat Niyazov does not wish to see his gas pass through the terrain of a neighbouring state, Azerbaijan, which is both a rival gas producer in its own right and with which he has a serious maritime border dispute concerning a cluster of oilfields in the south-central Caspian. Although at least one Turkish official argues that, in time, the South Caucasus Pipeline from Baku to Erzurum "may also constitute the first part of the Turkmenistan-European route," accomplishment of such a goal will almost certainly have to wait the post-Niyazov era in Turkmenistan.

4.3.5. The Nabucco Project

This is particularly true of the Nabucco project, which, if it is developed in the way its promoters envisage, would do most to establish Turkey as Europe's fourth artery. However, it should also be noted that the EU's consistent backing of a Turkey-Greece-Italy Interconnector has a strategic underpinning. The extent of detailed planning and, in particular, its development by prospective gas importers makes it

look increasingly probable that the next few years will see the development of at least one major pipeline system for delivery of Eurasian gas to Europe via Turkey: the Nabucco project. As much as 20-30 bcm/y would flow northwards to markets in central, northern and western Europe by means of this project, currently being developed by Austria's OMV in partnership with Turkey's state pipeline company, Botas, Hungary's MOL Transmission plc, Bulgaria's Bulgargas and Romania's Transgaz. Some experts belive that, in 2006, the Shakh Deniz project will start into life and the Shakh Deniz gas will start flowing to Turkey, Greece, Europe and the Southern Ring. And also the SCP will constitute the first leg of the Caspian-Turkish-European pipeline system. Johann Gallistl, manager for international affairs at Austria's OMV Erdgas, argues that the 3,400 km line, €4.4 bn, Nabucco project offers a serious prospect for delivering Middle Eastern and Caspian gas to major European markets. The line is planned to have a capacity of 25-30 bcm/y as it crosses Turkey. The transit countries would themselves take around 8-10 bcm/y, so deliveries to Baumgarten would be around 17-22 bcm/y. The partners in the project have all agreed to meet at least part of their own domestic demand by means of Nabucco. During the mid-2004, a new Vienna-based venture set up to coordinate the project, the Nabucco Company Pipeline Study GMBH, was incorporated, with gas companies in Austria, Turkey, Hungary, Romania and Bulgaria each holding a 20% stake - and with France's Gasunie showing interest in becoming a member. The current time frame for the project is for a detailed technical design and an environmental assessment study to be started in 2005 and ready by mid-2006. The construction phase will last from mid-2006 to end-2009. The start of operations will be in 2009. Contractual conditions between suppliers and buyers will be crucial. The International Energy Agency (IEA) and the Energy Charter Secretariat (ECS) noted

that what they termed non-price differentiation may be a key element in developing competition with existing sources. By this, they meant structuring contracts in new ways that are more attractive to buyers, such as short- to medium-term contracts and the introduction of price indexation systems that are not dependent on oil prices. Non-price differentiation, the IEA and ECS said in their summary of their recent seminar on Natural Gas in South East Europe: Investment, Transit, Trade in Istanbul, "may be a determinant in attracting and securing gas importers which are increasingly evolving in volatile and competitive gas markets." At the Istanbul seminar, it was clear that the IEA's estimates for prospective EU gas import requirements served as an encouraging background for presentations concerning lines involving Greece and the major project to carry gas to the heart of Europe, the Nabucco project. Moreover, there was no feeling that proponents of the Turkey-Greece-Italy Interconnector were in competition with backers of the Nabucco project to carry gas from Turkey through Bulgaria, Romania and Hungary to Austria's major gas terminal at Baumgarten. The two targets of projects were quite different from regional markets: Italy for the interconnector from Greece and Central and Western Europe for Nabucco. There was a widespread view at the invitation-only seminar that not only were producer countries providing an obvious push factor for such lines, but that the pull factor from consumers in Europe was becoming increasingly apparent. Since the development of pipelines from Turkey to the EU has overwhelmingly demand driven (whereas to a large extent the development of pipelines to Turkey is driven by a mixture of producer (supply) interests and availability of demand, and since the costs of such pipelines have to be spread between several potential purchasers, the development of gas importer consortia becomes crucial. In their own

summary of the Istanbul seminar, the IEA and ECS clearly look forward to the creation of such consortia:

"As the development of gas routes demand is driven and requires significant investment and financial capacities, the involvement of major European gas companies and new operators in buying and distributing the gas are essential. The transformation of isolated national markets operated by public monopolies toward an internal EU gas market with multiple operators will have a major impact on the gas import scene. Gas distribution companies, which will have to face increasing competition, will most probably create consortium(s) to secure import supplies and share the costs and the risks. All these elements combined will impact on the development and the implementation calendar of transit routes across South East Europe, at the earliest from 2006-2007. OMV's Gallistl told the seminar: "We think that, especially in comparison with other new projects being discussed, that Nabucco is cost competitive."[131]

4.3.6. The West Balkans Pipeline Proposal

In considering the Turkey-Greece-Italy interconnector in Istanbul, DEPA also said that a plan for a West Balkans line was "under consideration but was not mature yet." An agreement to study such the evolution and implementation of such a line was signed on 8 April 2003 between DEPA and Botas and the gas authorities of the Former Yugoslav Republic of Macedonia, Albania, Yugoslavia, Bosnia Herzegovina, Croatia and Slovenia. A study by the Observatoire Méditerranéen de l'Énergie (OME), carried out for the European Commission's Synergy Programme and presented in Istanbul, compared the Nabucco and West Balkans options with the Greece-Italy interconnector. It concluded that "projects to connect Turkey to Austria

[131] Roberts, Jhon, p.10.

either through Bulgaria, Romania and Hungary, or through Macedonia, Bosnia-Herzegovina, Croatia, Serbia and Slovenia (or possibly both) are more likely to see the light, but will still require substantial political backing." However, these countries - with the notable exceptions of Romania and Croatia - have small gas markets. Moreover, they suffer from political and regulatory uncertainties and are mountainous. This proposal has therefore not attracted a real commercial interest and looks more like a long-term project. In terms of regional gas supply, such a line would play a significant role. But it is not a major concern with regard to overall European gas security unless it is specifically developed as a complementary system to the Nabucco project, linking Turkey not only with the Balkans, but with a major European hub.

4.3.7. The Russian Route Pipeline Connections

Turkey also has another pipeline infrastructure to meet it demand. Due to its huge reserves and production capacity there are, currently, two different pipeline links with Russia. First one is the **Western Route** that is operational since 1997 and crosses Ukraine, Moldova, Romania and Bulgaria and reaches Turkey. The Capacity of the Western Route is 14 bcm, however, from the Russian point of view this line is not reliable because of the the illegal "siphoning" of their gas on the way before it reaches to Turkey. Therefore, the one of the biggest project for Turkey was started to construct: **Blue Stream** which operates since December 2002. The $3.2 billion "Blue Stream" pipeline runs from Izobilnoye in southern Russia, to Dzhugba on the Black Sea, then under the Black Sea for about 247 miles to the Turkish port of Samsun, and on to Ankara. Even though flows through the pipeline totaled only 113 Bcf during 2004, the recent launch of a new gas compressor station in Russia will allow the

pipeline to run at its design capacity of 565 Bcf per year. During 2005, roughly 160 Bcf of natural gas has been transported via Blue Stream. Russians are proposing to extend this line from Ankara (the existing line transports gas from Samsun port to Ankara) to Ceyhan or Izmir. In addition, the plans are due to further transporting additional volumes of gas to Israel either by a subsea pipeline or by LNG tankers from Ceyhan. Another option is to access the planned 280-350 Bcf **Poseidon Pipeline**, which will bring Caspian and Middle East gas to Italy via Turkey and Greece starting in 2010.

4.3.8. Bosporus By – Pass Projects

Turkey's Straits (Bosporus and Dardanelles) are a major shipping "choke point" between the Black and Mediterranean Seas. The current oil tanker transportation volumes are as high as 140 mty and projected to reach to 200 mty by 2010. Even if BTC were functional, we will stil have unacceptably dangerous tanker traffic load to threaten the Straits and İstanbul city. Turkish Straits are accepted to be among the most dangerous waterways of the world. Only half a mile wide at its narrowest point, with strong currents in opposite directions at a point are among the most busiest and hard to navigate waterways. To this purpose, there are several “Bosporus Bypass Projects” proposed. The most important “customer” of the Straits are the tankers loaded by Russian oil and the new regulations implied by Turkish authorities f or security and environmental concerns caused delays and therefore reactions of the Russian Federation. Since International Maritime Organisation rejected the Russian objections, now they are proposing Turkish Straits “bypass” pipelines categorized as Trans-Thrace Pipelines. On the contrary, Turkish authorities are favoring Samsun – Ceyhan Pipeline aimed to transport the oil reaching to the Black Sea port of Samsun

(Turkey) via Turkey to its Mediterranean port of Ceyhan. The negotiations are underway.

5. CONCLUSION

Energy is a crucial input for the economy of any country. Energy allows an economy to grow and increase its output. Countries that do not have sufficient energy sources must import energy from elsewhere. The availability and cost of energy have a large impact on the competitiveness of a country or economy, but it also impacts the cost of living. Access to energy is therefore a precondition for economic growth and economic stability. A net importing country must balance its energy imports with exports of other goods and services in order not to be effected from balance of payments deficits and potential economic instability.

An efficiently organised energy economy is therefore important. The market for energy is a global market. Net consumer countries depend on energy imports to fulfil their demand for energy. On the other side, producer countries depend on energy export to fulfil their demand for income. This kind of relationship is known as interconnection. It has no meanful production without consumption. For instance, Russia or Iran are vital for the European countries, because absence of suppliers or having bad relations with these countries have potential to collapse their energy intensfied economies. At the same time, Italy or Germany are also important for the Russia and Iran. Currently, fossil fuels meet 90 percent of the world total energy consumption and in pace to be exhausted. In addition, carbon originated natural resources are not well distributed. It means that nearly half of the world states have not enough reserves to meet their demand.

Nowadays, world is facing three important challenges, sky-high oil prices, declining in the quantity of the fossil fuels and environmental problem. Initially, there is four major reasons behind the current oil prices. First one is unstabilities in the regions that contains more than two-third of the world's proven oil reserves. War

in Iraq and disorder in the Middle East, the operation against Yukos and the oil producing companies of Russia, and political conflicts in Nigeria and Venezuela. According to experts the factor of "fear and worry" had helped an increase of 17-15 dollars in oil prices. Second reason behind the prices is the demand that comes from China, India and other developing countries going to meet. Thirdly, the Caspian Sea region and the Central Asian reserves are not able to reply the demand that is rising while the share of Middle East is reducing. The last reason is the natural disasters which devastated the some US states that were important for the oil production and refining process of the USA, who is the biggest oil importer of the world. It is possible to say that the price of the oil will not recede to less than $50 after this ordeal and if could create the biggest oil crisis since the 1970's.

Another challenge is again related to the fossil fuels, which are not going to last long and and one day is going to be exhausted. As it mentioned before, the fossil fuels meet the world's 90 percent of energy consumption and absence of the oil, gas or coal means end of the modern world economy as we know it. Accroding to some projections, the life of the existing oil reserves is 40-50 years, natural gas 60-80 years and coal is more than hunderd years. At this point humanity will need alternative energy sources for living in the same standarts. Using the existing sources effectively or developing new sources are vital requirements for us. Diversification is the key word.

The last challenge is the environment. Since the Industrial Revolution, the level of CO2 in the Earth's atmosphere has increased from 280 parts per million (ppm) to 375 ppm today. The period from 1970 to 2000, accounted for 60% of this increase. The average global temperature rose by 0.6 degrees Celsius. Based on expected rates of economic growth, energy consumption and the continuing dominance of fossil

fuels – almost 90% of the energy consumed – the International Energy Agency (IEA) anticipates another 70% increase in CO2 emissions in the period 2000-2030. In 2025, the developing countries are expected to surpass the developed countries as the biggest contributors of new CO2 into the atmosphere. The best weapon to fight against climate change and green house gases is the Kyoto Protocol, which require 5.2 percent reduction of green house gas emissions (compared to1990 level) by 2012. However, the USA who is the biggest green house gases producer and Australia, decided not to ratify the protocol. On the other hand, the EU is the strongest advocate for the Kyoto but did not fulfil current requirements. The Kyoto Protocol came into effect on 16 February 2005 has led to both celebration and protests. Protesters included economists who asserted that the Protocol is an economically unviable proposition; liberal politicians regard the Protocol as too state-oriented; European business representatives are concerned about their international competitiveness; and members of the NGO community warn that the Kyoto Protocol is only a marginal first step to avert global warming.

The European Union who is the second biggest energy consumer of the world, does not have got comprehensive and functional energy policies despite its importance and necessity. Today, the EU has three pillars energy policy; establishment of the internal gas and electricity market; environment; and supply security. All of them are related to the Union's exitance and the EU future. The Commission has taken some concrete steps about the internal market. For example a consumer from Germany will be able to choose the supplier from Poland in 2007. Second, environmental plans are directly related the Kyoto protocol. Third, supply security problems of the EU is more important than all other pillars. As demand grows in Europe, dependence on foreign suppliers also increases. The biggset part of

the Union's imports comes from; Russia, the Middle East and North Africa. Internal production level of the Union is just meeting 10 percent of the total consumption and is declining. The biggest partner on the import area is Russia, who supplies 50 percent of the Union's gas and 30 percent of its oil. Moreover, this dependency is higher in the Central and Eastern Countries of the Community. The EU as a whole is becoming increasingly dependent on Russian energy. When the new Gazprom pipeline under the Baltic Sea is completed, EU will depend on Russia for up to 80 percent of its gas supplies. There are projections that by the year 2030, the EU's external dependency will reach to 70 percent. However, despite these trends the Union lacks a coherent, effective and long term strategy or achievable policy either toward Russia or with regards to it future energy needs. The EU has to diversfy the energy resources options from the renewable energy sources to the energy provided by the countries of the Caspian Sea.

Turkey has a potential to become an alternative for the EU's energy import routes. The geographic location of Turkey offers an opportunity to the EU and Turkey itself. Ironically, Turkey does not have any sufficent energy sources, and 70 percent of the world proven hydrocarbon reserves are located around Turkey; in Russia, the Caspian Sea and the Middle East. Collapse of the Berlin Wall and the Iron Curtain on the one hand jeopardized the Turkey's geopolitic importance and on the other hand offered some opportunuties. Caspian Region represents the best option because Turkey historically and culturally has ties with the new independent states of the region. It ought to consider that landlocked geography of the Caspian Sea Countries and the Central Asian States make these countries depended on the neighbour countries transportation routes. First ten years of their independence the Caspian and Central Asian countries had to use the infrastuructre of Russia to export

its production. Meanwihle, Iran was also another option for the transportation. However, Iran and Russia both are rivals of the newly independent states because of their huge gas and oil reserves. They use their transportation route as weapon. At that point Turkey and east-west route is the best option for the new Turkic States. First of all, Turkey is located near the second biggest energy market of the world and not a rival for Caspian Sea countries.

Turkey is becoming a focal point in terms of energy, thanks to its geopolitic position and the realtionship with its neighbours. This means that Turkey will be more powerful for the negotiations of fullmembership with the EU and regain its geopolitic importance thanks to this energy corridor identity. Due to the level of the oil prices, the role of transit states has become particularly vital, and their status in the international political system has risen.Turkey borders a significant number of landlocked energy producers in the neighboring Caspian region. Turkey is viewed by the energy producers of the Caspian States a preferred transit state, due to a number of factors; including its important role within the Euro-Atlantic security and political structures. Turkey's desire was explained by Prime Minister R.T. Erdoğan and he stated that "one of the main factors of Turkey's energy strategy is making use of its geography and geostrategic location by creating a corridor between countries with rich energy resources and energy consuming countries". Since the 1990's Turkey has undertaken a number of major infrastructure projects in order to meet its rising domestic energy demand and to position itself as an energy hub to export to additional markets. Turkey needs to import more energy from states other than Russia. Moreover, Turkey must weigh the benefits and costs of playing a role in the EU's energy diversity policies, which would be aimed at building alternatives to Europe's dependence on Russia.

As a conclusion, Turkey does not possess an over-arching energy policy, and its energy policies are not well integrated into its security and foreign policies. In sum, Ankara needs to articulate an energy policy that outlines its energy security components and places the energy policy in the context of Turkey's foreign and security policies. Moreover, the EU is beginning to formulate new energy security policies, and Turkey should have a well articulated policy if it hopes to achieve a role in these new EU policies.

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