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THE NEW EU ENERGY GATEWAY AND TURKISH ENERGY POLICY

YÜKSEK LİSANS TEZİ

Özdal YILMAZ

DANIŞMAN
Prof.Dr. Muzaffer DARTAN

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ABSTRACT

THE NEW EU ENERGY GATEWAY AND TURKISH ENERGY POLICY

The purpose of this thesis is to highlight Turkey's current and potential role in the supplying oil & gas to Europe, and the politics of energy gain and consumption in Turkey within the context of sustainable development. It examines current and projected energy usage patterns against the background of existing energy procurement strategies and their renewable alternatives.

Energy is the indicator of the developed country. As a one of the leading market, EU needs continuous energy in order to keep on its development. Turkey is geographically a natural gateway through which the EU can access oil & gas from many of the world's primary gas suppliers. The thesis comparatively related with the existing and potential pipeline infrastructure for oil & gas supplies to Europe via Turkey and discusses what role the EU is already playing, and might be expected to play in the future, with regard to ensuring its energy security by means of pipeline development to carry gas to the EU market via Turkey.

In order to keep the development and economic growth, countries must diversify their energy dependency and ensure their security of supply. Indeed, the vital gateway role makes Turkey's place as a fourth energy artery of EU, but also continuous energy is an inevitable catalyst for Turkish industry

Consequently, if Turkey can realise all these energy projects, it can facilitate tight national and political control in order to ensure security of supply and indeed it is the key to economic development and driving force behind its modern society.

ÖZET

AB ENERJİ ANAKAPISI VE TÜRK ENERJİ POLİTİKASI

Bu tez genel olarak Türkiye'nin Avrupa'ya petrol ve doğal gaz sevkıyatında üstleneceği rolü, enerji kazanım - tüketim politikalarındaki gelişmeleri, mevcut ve gelecekteki enerji kullanımını, var olan enerji stratejileri ve yenilenebilir alternatif enerjileriyle kıyası konularını ele alır.

Enerji bir ülkenin gelişmiş olduğunun göstergesidir. Öncü marketlerden biri olan AB gelişmesini sürdürebilmek için enerjiye sürekliliğine ihtiyaç duymaktadır. Türkiye coğrafi konumu itibariyle AB için dünyanın önde gelen gaz ve petrol pazarlarına açılabileceği en önemli kapıdır. Bu tezde Avrupa'ya Türkiye yoluyla giden mevcut ve potansiyel petrol ve doğal gaz boru hatlarının altyapılarını ve AB'nin gelecekte enerji güvenliği açısından Türkiye yoluyla gaz taşımacılığında hangi rolü alabileceğini inceler.

Gelişmeyi ve ekonomik büyümeyi sağlamak için, ülkeler enerji bağımlılığını çeşitlendirmeli, yerli ve alternatif kaynaklara yönelmelidirler. Transit ülke rolü, AB'nin dördüncü enerji arteri olarak Türkiye'nin yerini AB için kaçınılmaz yapacak ve enerji sürekliliği Türk endüstrisine ivme kazandıracaktır.

Sonuç olarak Türkiye'nin enerji projelerini hayata geçirmesi ve dağıtım güvenliğini garantilemesi, ulusal ve siyasi istikrarı kolaylaştırır. Şüphesiz bu modern toplum olmayı ve ekonomik gelişmeyi sağlayacak önemli bir etmendir.

ABBREVIATIONS

ACG : Azeri-Chirag-Guneshli
AECL : Atomic Energy of Canada Limited
AIOC : Azerbaijan International Operating Company
BOT : Build, Operate and Transfer
BOO : Build, Own and Transfer
BOTAS : Turkish Petroleum Pipeline Corporation
BP : British Petroleum
BTC : Baku – Tbilisi- Ceyhan Crude Oil Pipeline
DEPA : Greek Public Gas Corporation S.A.
CCT : Clean Coal Technologies
CHP : Combined Heat and Power
CO_2 : Carbon dioxide
COLREG : Collision Regulations
CPC : Caspian Pipeline Consortium
EC : European Community
ECCP : European Climate Change Programme
ECO : Economic Cooperation Organisation
ECSC : European Coal and Steel Community
ECS : Energy Charter Secretariat
EEC : European Economic Community
EGAS : Egypt Natural Gas Company
EGO : Electricity, Gas and Bus Company (Turkey)
EIB : European Investment Bank
EMG : Eastern Mediterranean Gas Company
EMRA : Energy Market Regulatory Authority
ENI : Ente Nazionale Idrocarburi - Eni S.p.A
EU : European Union
EURATOM: European Atomic Energy Community
GAP : Southeastern Anatolia Project
GDP : Gross Domestic Product
GdF : Gaz de France
GWh : Gigawatt hour
ICC : International Court of Commerce
IEA : International Energy Agency
IGDAS : Istanbul Gas Distribution and Trade Corporation
IMF : International Money Fund
IMO : International Maritime Organization
INOGATE: Interstate Oil and Gas Transport to Europe

IZDAS : Izmir Gas Distribution and Trade Corporation
LNG : Liquefied Natural Gas
MOL : Hungarian Oil and Gas Public Limited Company
MOU : Memorandum of Understanding'
MTA : Mineral Research and Exploitation
MTOE : Million tons of oil equivalent
MW : Megawatt
MWe : Megawatt electrical
MWth : Megawatt thermal
NABUCCO: Turkey-Bulgaria-Romania-Hungary-Austria Natural Gas Pipeline Project
NGO : Non-Governmental Organization
NLNG : Nigeria Liquefied Natural Gas Limited
$NaBH_x$: Sodium Boron Hydride
NO_x : Nitrogen oxides
NPI : Nuclear Power International (France)
NPP : Nuclear Power Plant
OECD : Organization for Economic Cooperation and Development
OMV : Austrian Oil and Gas Company
OPEC : Organization of the Petroleum Exporting Countries
OSCE : Organization for Security and Cooperation in Europe
PKK : Kurdistan Worker Party (Terrorist Organisation)
POAS : Petrol Ofisi AS
PV : Photovoltaic
RES : Renewable Energy Source
SCP : South Caucasus Natural Gas Pipeline
SOCAR : State Oil Company of Azerbaijan
SO_2 : Sulphur dioxide
TEAS : Turkey's Electricity Generating and Transmission Corporation
TEN : Trans-European Network
TEU : Treaty on European Union
TOR : Transfer Operational Rights
TPAO : Turkish Petroleum Research
TTK : Hard Coal Enterprise of Turkey
TAEA : Turkish Atomic Energy Authority
TRACECA: Transport Corridor Europe Caucasus Asia
TUBITAK: The Scientific and Technological Research Council of Turkey
TUPRAS : Turkish Petroleum Refineries Corporation
UK : United Kingdom of Great Britain and Northern Ireland
UN : United Nations
UNCLOS : United Nations Convention on the Law of the Sea
UNIDO : United Nations Industrial Development Organization
USA : United States of America
bcm : billions cubic meter
bcm/y : billions cubic meter per year

bbl/d **:** billions barrel per day
bbl/d **:** barrel per day
kWh **:** kilowatt hour
km **:** kilometre
mcm/d **:** million cubic meters per day

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I INTRODUCTION

In the world social and economic development depends inevitably on some primary resource of energy. Coal is fuel of the world's industrial development up to the First World War. The requirement of energy has boomed with the Second World War and crude oil took over the lead in. Nuclear energy has yet to fulfil its promise. Renewable and clean resources are hopes.[1] Today and in the foreseeable future, oil and natural gas are one of the well-being materials and the sinews of power.

The last decade the main goal of Turkey's energy policy is prioritizing consumption of indigenous energy resources to meet demand, diversifying energy sources and to avoid dependence on energy imports and become a transit country by transporting energy sources produced in the Caspian Region and Middle East to the European markets, contributing to the realisation of the East West Energy Corridor and to improve natural gas supply diversification and security both for Europe and itself transit country

Due to its geographical location and its growing, open and competitive gas and oil market, Turkey is likely to become a key for new suppliers to enter the EU market. In turn, that access will depend on a strong and healthy Turkey playing the decisive role in securing that access.

The gap in Turkey's energy supply and demand is the key element which determines Turkey's energy policy. As a country with an emerging and rapidly growing economy, Turkey at the same time is facing a rising growth in its demand for energy.

In the thesis explains Turkey's energy policy efficiently addresses indigenous and foreign energy needs. It also addresses Turkey's energy policy influence its foreign policy and promote the interests of its allies and neighbours. They are crucial for Turkey's and European industries' energy needs increase and cannot be regarded and solved without consideration of the international relations between and among the parties that are involved.

[1] Karaosmanoğlu, Filiz. (2004). Enerjinin Önemi, Sınıflandırılması ile Kaynak ihtiyaç dengesi ve gelecekteki enerji kaynakları. p 13

Energy has emerged as an important factor influencing Turkish internal and foreign policy. Turkey's increasing energy needs have given Turkey a strong interest in developing ties with Russia and energy producing countries in the Middle East, the Caspian Region.

The millennium brought the expected opportunity to Turkey. If the Turks can realise and stabilise these projects, it becomes energy gateway or transit country for Europe at next decade. Consequently, it will accelerate the Turkey's economic growth and it will gallop in EU membership. Turkey efficiently addresses indigenous as well as foreign energy needs and economic interests of energy supplying countries, while at the same time is providing a foreign policy which is able to foster and stabilise international relations and interests.

After the introduction chapter the second chapter is about the progress of energy policies in EU and the third chapter is about EU Common Energy policies. The fourth chapter explains why Turkey Europe new natural gas and oil artery is. What are the existing and potential natural gas & crude oil dispositions in that Region? Similarly, it explains incoming and outgoing natural gas & crude oil pipelines and pipeline projects, LNG and underground storage projects. The fifth chapter look into whether Turkey becomes EU energy gateway. It explains the effect of the factors such as international treaties and disputes, the oil companies, USA policies and Turkey energy investments

The sixth Chapter explains the result of the thesis and what should be the Turkish Policy in order to be Europe new energy gateway.

II HISTORICAL BACKGROUND

2.1. ENERGY POLICIES UNTIL OIL CRISIS (1951-1973)

After World War II tragedy, the former British Prime Minister Winston Churchill pronounced a United States of Europe in Zurich (1946) for drained and exhausted old continent. On 9 May 1950 French Foreign Minister Robert Schuman who inspired by Jean Monnet, proposes creation of European Coal and Steel Community. The Treaty of Paris was signed on 18 April 1951, establishing of ECSC between "the Six" countries: France, Germany, Italy, Belgium, the Netherlands and Luxemburg. On 25 March 1957, the Six signed the Treaties of Rome, establishing the European Economic Community and the European Atomic Energy Community. [2]

The three founding treaties have community's future energy policies related provisions. The Paris Treaty Article 3 is about general responsibilities and goals, Article 57-64 production and price. EURATOM Treaty emphasizes nuclear energy, Article 40-67 is about investment and supply, Article 92-100 is about nuclear common market. Similarly in EEC treaty Article 103 and 235 the energy policies were integrated with community common market.[3] Treaties are especially interesting in respect of the gas and electricity sectors, where monopolies and different trade barriers at national level. However, competition rules have never been enforced concerning energy sector. [4]

In 1950s and 1960s, the main energy policy in the Community was how to provide sufficient energy in order to fuel rapid growth. Especially, technological developments and financial profit has provided enough energy supply. Major investments have focused on rapidly growing demand for electricity and its infrastructure. Energy was mostly indigenous coal supplies. Energy co-operation fuelled wider economic and political co-operation.

In the late 1960s and in the 1970s, the geopolitical aspect of energy supplies has increased its significance. Cheap imported oil replaced coal. Growing trade in oil and

[2] Karluk, Rıdvan. (1996). Avrupa Birliği ve Türkiye, p 40-41
[3] Ibid., p 242-243
[4] Haugland, Torleif & Bergesen, Helge & Roland, Kjell. (1998). Energy Structures and Environmental Futures. p 171

natural gas called for natural control of the supply chain for energy treaded internationally. Most of the oil producer countries either governments took ownership or actively support domestic oil companies to engage in exploration for oil and natural gas.[5]

From the early 1960s, oil consumption had been increasing steadily, while consumption of coal and natural gas had declined. Between 1950 and 1972, it almost doubled to account for over 60 % of total energy consumption. The cost of this was made even heavier by the oil crisis from October 1973 onwards.

After the Yom Kippur War, the idea of using oil supply as a weapon in the international struggle against Israel and its allies was decided by the Arab oil ministers meeting in Kuwait on 17 October 1973. The Arab members of OPEC plus Egypt and Syria, announced to cut oil exports to Europe and America in order to force the Western countries to put pressure on Israel. These OPEC member countries supported by the Soviet Union, that forced a sharp rise in the price of crude oil, which led to a global energy crisis. The Arab oil producers reduce oil production 5 % and totally cut off the supply to USA and the Netherlands. From October to December 1973, the price of a barrel of crude oil increased fivefold.[6]

It was the first oil crisis that Europe has endured it triggered a larger economic crisis, it impacted on the Western economies in two ways: it severely exacerbated inflationary trends (the annual inflation rate in the UK soared to 20 %), and it siphoned off part of the wealth of the oil-importing countries, causing an enormous budget deficit. The effect of economic crisis soon came into Western Europe, the first symptom of which was a recession that put a sudden stop to the growth of the thirty years that followed the World War II. Industrial production declined, impacting on traditional economic sectors including textiles, shipbuilding and steel. International trade crumbled, and bankruptcies became regular occurrences.

[5]Haugland, Torleif & Bergesen, Helge & Roland, Kjell. (1998). Energy Structures and Environmental Futures. p 2-5

[6] Campbell, Colin J. (2005). Oil Crisis. p 92-93

The crisis of course hasn't affected all the countries equally. For instance, the countries whose economies were traditionally based on industry e.g. Belgium and the United Kingdom, had more difficulty in adapting than small countries as Luxembourg.

Actually, according to Council Directive of 20 December 1968[7] provides that the Commission arranges for consultation with the Member States before they reduce stocks below the 90 days limit.

Finally, the orientation of official energy policies, and the balance of other policies has affected energy sector. After the post war era, there was an emphasis on fostering national energy resources and managing the transition to a more diverse energy balance, on the basis of a worry with energy security. The energy supply industries were important mechanism for pursuing the governments were able to exert influence through outright ownership or the allocation of special privileges within energy markets e.g. granting exclusive rights or monopoly franchises.

2.2. ENERGY POLICIES AFTER OIL CRISIS (1974-1985)

With the 1973 oil crisis energy became a problem again and the difficulties were revealed by the different national response. The member states wished, but failed, to establish a common energy policy again.[8] On 17 September 1974 European Commission energy programme was accepted by Council of Ministers.[9] The Council adopted a strategy and a set of objectives for a common energy policy to address the new factors obtaining on the world energy market e.g. energy saving.

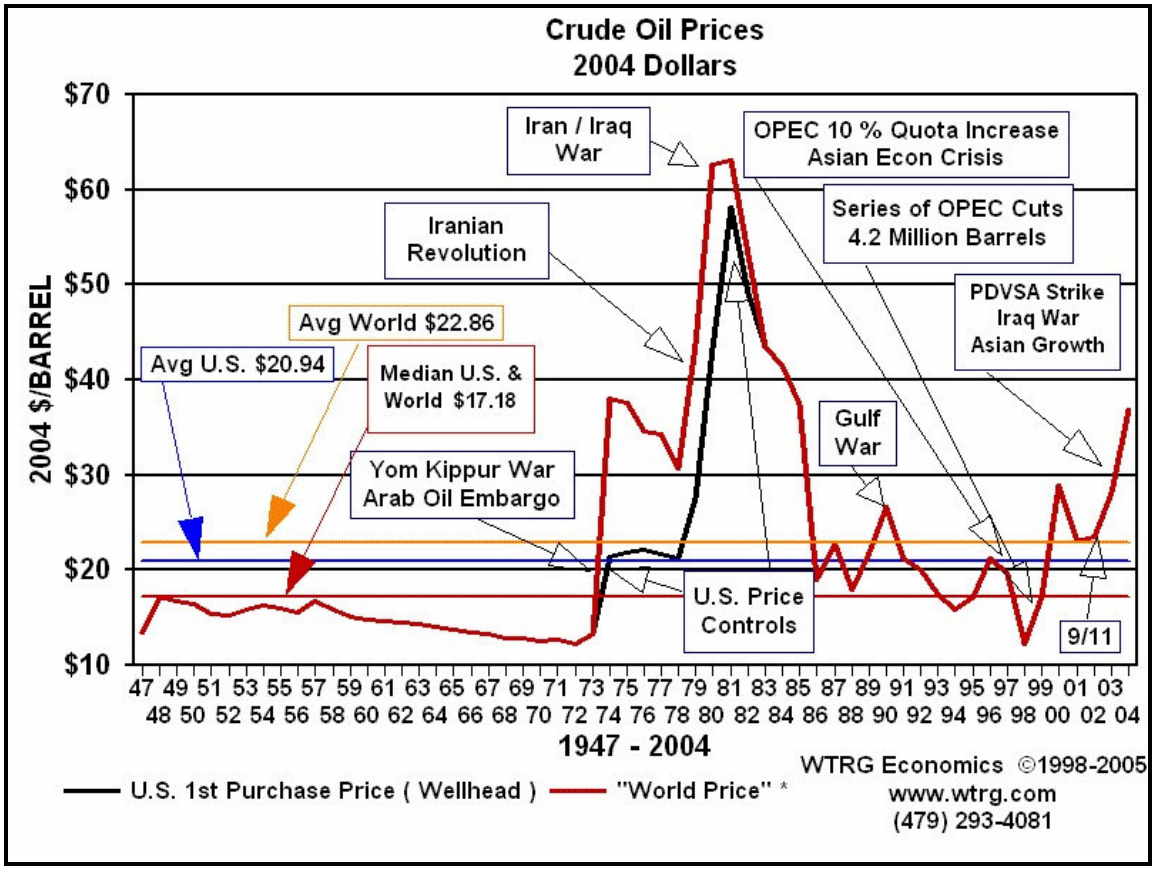
These sets targets for the Community as a whole concerning economic growth, consumption to be stabilized in 1976 at a level slightly lower than that for 1973. The original priority was reduce EU dependence upon petroleum especially supplies from volatile region within 10 years petroleum imports had been reduced by one half through savings achieved and increased efficiency successful exploration of North sea petroleum, and diversification of energy sources. The reduction of oil consumption was

[7] Council Directive 68/414/EEC (OJ L 308 , 23.12.1968 p.14-16)
[8] Nugent, Neill. (1994). The Government and Politics of the European Union. p 39
[9] Council Resolution (OJ C 153, 09.07.1975)

targeted 15% for 1985 and for 1976 and 1977 it has been maintained at an average level approximately 10 % below the 1973 level.

In June 1980, the Council adopted what was probably the first energy intensity target for the European economy: reduce the ratio of the rate of increase in energy consumption to the rate of increase of GDP to 0.78 by 1985. In 1980, a target of 0.77 or less was adopted for 1990.[10]

Figure 1 Crude Oil Prices 1947-2004



Source: http://www.wtrg.com/oil_graphs/oilprice1947.gif (Accessed on 28/03/2006)

The evolution of oil prices for the period 1947-2004 is shown in Figure 1 both in current and constant terms. The two oil shocks of the 1970s, 1973-1974 and 1979-1980, can be

[10] Council Resolution (OJ C 149, 18.06.1980)

clearly identified. Real oil prices quadrupled during the first shock and tripled during the second shock. The world oil production in the 1973 Arab-Israel (Yom Kippur) war 7.8%, and 8.9% in the 1978 Iranian revolution has dropped.

Most of the governments have required maintaining energy policy as a domestic responsibility, intervening either directly or through national firms to maintain some degree of sovereignty. Vulnerability to external energy shocks has been the norm most countries. Whereas in 1960, the countries which now comprise the EU produced just under the 70% of their needs, by the 1970 that share had fallen to less than 40%. Because increased energy efficiency and development of domestic energy resources, the share had risen to around 50% in the 1980s and 1990s.[11]

The lack of a common EU policy in the energy sector up to the late 1980s is consistent with a lack of overlapping interests between member countries (and national energy sectors). From the late 1950s to the early 1970s such co-operation hasn't been essential. During the 1970s national interests were too varied. However, failures and successes of EU energy policy pose asymmetric problems of explanations.[12] The following period this trend became obvious as new initiatives emerged in EU during the 1980s.

2.3. ENERGY POLICIES (1985-PRESENT)

The mid of 1980s EU was still far from common energy policy. The new EU energy policy initiatives have been shaped to three major perspectives for EU policies: The first one is competitiveness: traditionally monopoly markets for the different fuels heavily regulated on a national basis, have been driven towards the competition in order to create restructuring and liberalisation of competitive internal market for pan-European regulatory framework. The second is security of supply: The European Energy Charter and the Energy Charter Treaty[13] which were attempted by EU to create international market regimes that could support reform in the former East Bloc and thereby secure EU's energy supplies. The third one is concern with the environment: As a result of

[11] McGowan, Francis. (1996). European Energy Policies in a Changing Environment. p2

[12] Scharpf, Fritz. (1988). The Joint-decision Trap: Lessons from German Federalism and European Integration, pp 239-278

[13] Council and Commission Decision 98/181/EC, ECSC, Euratom, (OJ L 69, 9.3.1998, p. 1–116)

burning of energy resources the air pollution is the objective of the policies. EU accepted higher targets in this field internally in Treaty of Amsterdam[14] and externally in Kyoto Conference.[15]

The Single European Act[16] and the Maastricht Treaty[17] revitalised the European integration process, and strengthened the Commission's position as a policy maker in a number of areas market liberalisation and the environment being important among them,[18] and it is against this background that the Commission renewed its interest in energy policy.

During the early 1990s it became clear that the strong liberalisation the Commission proposed would not be acceptable for countries whose energy policies rested on national planning and public service ideas, including France and Spain, and the Commission retreated to a position that would satisfy all. The Commission had wanted to introduce a common-carrier principle, in which every electricity company would have full access to the grid, but this was forced to a weakened position, negotiated third-party access. Further, public service obligations were introduced.[19]

In 1986 a new set of Community energy policy objectives for 1995 were adopted. Supply and use of energy were concerned; it urged that petroleum imports be held at a level below one third of total EU energy consumption, with greater reliance upon coal and nuclear energy. (Later 40% of EU needs by 1995.

All developments take place within context of greater efficiency and energy saving at least 20% to be secured by 1995. More financial assistance was to be made available for the exploration of alternative energy sources e.g. solar, wave and wind.

It recommended more internal trade in natural gas and electricity and called for common pricing system across all energy sectors It confirmed the importance of maintaining a

[14] Treaty of Amsterdam amending the Treaty on European Union, the Treaties establishing the European Communities and certain related acts (OJ C 340, 10.11.1997)
[15] Molle, Willem. (2006). The Economics of European integration: Theory, Practice and Policy. p 191-192
[16] Single European Act (OJ L 169 of 29.06.1987)
[17] The Treaty on European Union (OJ C 191, 29.07.1992)
[18] Kassim, Hussein (Ed.) & Menon, Anand (Ed.). (1996). The European Union and National Industrial Policy. p 145
[19] Midttun, Atle (Ed.). (1997). European Electricity Systems in Transition. A Comparative Analysis of Policy and Regulation in Western Europe. p 266-267

contingency supply of fuel reserves equal to 30 days consumption at power stations (and 90 days' consumption in the case of petroleum stocks) and more flexibility and cooperation between Member States. It suggested EU should seek to use more effectively its position as a major energy consumer to negotiate agreement with energy suppliers. Finally, it emphasized the need for a major and coherent research and development programme, and for energy policy to be consistent with environmental protection.

There were potential conflicts between energy needs and environmental protection, and a growing reaction against nuclear power. In the 1990s there were 3 major aspects to energy policies.

First a consequence of the "internal market", there was a new stress upon a single energy market. It pushed towards more liberal arrangements in the energy sector (gas and electricity markets) by removing the dominance of state monopolies by 2000. The European Commission issued several directives on price transparency, the transit of energy and the development of energy infrastructure. The EU also took the lead in the establishment in 1991 of a European Energy Charter linking western within Eastern Europe. Finally, the Commission linked the development of energy more closely with environment policy. The major symbol of this commitment was the proposal foe a "carbon tax".

Much of the proposed energy programme was contentious, since the energy requirement of the EU were likely to continue to grow. Given its potential importance, it is surprising that only limited reference was made to energy in the Treaty on European Union: it referred only to the existence of EU powers in the area of energy and the need for development of European energy infrastructures. Moreover, although it was agreed that the possibility of incorporating energy into the treaty basis if the EU would be reviewed by the intergovernmental conference at the end of 1996 considering possible revisions of the Treaty, Treaty of Amsterdam[20] went no further than TEU. In 1995 EU Commission

[20] Treaty of Amsterdam amending the Treaty on European Union, the Treaties establishing the European Communities and certain related acts (OJ C 340, 10.11.1997)

published a White Paper[21] on energy policy, prioritizing security of supply, improving the competitiveness of European business, and environmental constraints. Following this, in 1997 the Commission proposed a framework programme for the energy sector, which would run from 1998-2002 and would bring together all on going energy actions and programmes.

As part of Mediterranean Policy, a Euro- Mediterranean Energy Forum was established in 1996 to assist in the development of co-operation projects. In the seven years following the 1996 Directive on electricity[22], there have been improvements in the internal energy market in the form of some efficiency increases, certain price reductions and rises in competitiveness. Nevertheless, progress has not been sufficient and there are also visible shortcomings in the functioning of the market including dominance patterns. On the other hand, it is also necessary to take into account the fact that trade-offs exist to some extent (even if not in a systematic way) among principle objectives such as competition and security of supply, for example.

The EU Directive 2003/54/EC[23] on the electricity market tackles such issues in a more articulate way while putting forward the vision of a gradual development towards a fully integrated, competitive, secure and environmentally sustainable energy market.

It is also true that the Energy Charter Treaty, concluded on the EU's initiative, offers a sound and workable framework for such cooperation. The aim of the Treaty is to establish a legal framework in order to promote long-term cooperation in the energy field in accordance with the principles of the European Energy Charter. The Treaty's most important provisions concern investment protection, trade in energy materials and products, transit and dispute settlement.

The fact is that these plans and preparations are not yet translated into tangible ventures, in particular in Caucasus and Central Asia. EU TACIS project, concerning oil and gas

[21] Resolution on the Commission White Paper on an Energy Policy for the European Union (OJ C 362, 02.12.1996 p 279)

[22] Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 (OJ L 27, 30.01.1997 p. 20-29)

[23] Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 (OJ L 176, 15.7.2003, p. 37–56)

export pipelines out of the region, may hopefully pave the way to concrete joint projects between European companies and their Eurasian counterparts.

III EU COMMON ENERGY POLICY

3.1. TEN ENERGY

The TEN-E guidelines are one of the important policy instrument for EU in order to establish an effective operation of the internal energy market, strengthen security of energy supply by better linking the national markets and by strengthening relations with third countries in the energy sector, offer the customers the benefit of better service quality, a wider choice of energy mix and competitive prices.

The 1957 EC treaties of Rome and 1993 Treaty of Maastricht[24] laid the foundation for the creation of the internal market allowing the free movement of people, goods and capital. This includes, in particular, the European internal energy market.

The Treaty on EU Article 154[25] requires that within the framework of open and competitive markets, interconnection and interoperability of national networks as well as access to such networks. It shall take particular duty to link island, landlocked, and peripheral regions to the central part of the Union. The energy networks' objective is to help to reduce energy supply cost.[26]

The EU invests in electricity and gas transmission infrastructure projects with respect to European interest. A yearly budget of about € 25 Million is spent mainly for supporting feasibility studies. Most of the projects cross national borders or have an influence on several EU Member States. The first Decision[27] of 1996 (1254/96/EC) contains a series of guidelines on TEN-E specifies priority project of common interest among trans-European electricity and natural gas for their eligibility and fundability. The financial rules specify the financial procedures involved.[28]

Applications are made by promoters of eligible projects, like electricity and gas transmission companies, investors in LNG facilities and gas storages. Projects need to be

[24] The Treaty on European Union (OJ C 191, 29.07.1992)
[25] The Treaty on EU Article 154. (OJ C 325 , 24.12.2002)
[26] Evans, Andrew. (1999). The EU Structural Funds. p 196-197
[27] Decision No 1254/96/EC of the European Parliament and of the Council of 5 June 1996, (OJ L 161, 29.06.1996 p 147-153)
[28] Barton, Barry (Ed.) & Redgwell, Catherine (Ed.) & Ronne, Anita (Ed.). (2005). Energy Security: Managing Risk in a Dynamic Legal and Regulatory Environment. p 104

supported by the Member States involved. Implementing investments on gas infrastructure identified in TENs Guidelines is vital for the diversification of gas routes to the EU.[29]

The 29 July 1999 Decision[30] amended the indicative list of project of common interests, supplementing it with several new projects. On 13 May 2003 the commission adopted a Communication[31] in order to strengthen the energy co-operation with neighbouring countries. The Communication is focused on energy relation of the enlarged EU and its energy partner in Caspian Region and Southeast Europe. It highlighted new gas project with priority: UK-The Netherlands-Germany-Russia connection of network, Algeria-Spain-France new pipeline and increase of capacities, Caspian Sea countries & Middle East: bring sources to EU, LNG France-Spain-Portugal-Italy, and underground storage: Spain/Portugal/Greece.[32]

The Trans European Energy Networks are integral to the EU's overall energy policy objectives, increasing competitiveness in the electricity and gas markets, reinforcing security of supply, and protecting the environment.

3.2. EU ENERGY FRAMEWORK PROGRAMMES

The main actors in EU energy policy are the Commission[33], the Council of Ministers, the European Council, and the European Parliament. There is also different interest groups seek to influence the development of policy. The Commission is the most important player in terms of setting the agenda for EU energy policy. It has almost exclusive rights to initiate policy, although the European Council is important in terms of setting out the general direction of policy. Concerning the sector of renewable energies, the Commission has supported research and technological development since

[29] Bal İhsan & Laçiner, Sedat & Özcan, Mehmet. (2005). European Union with Turkey: the possible impact of Turkey's membership on the European Union. p 234

[30] Decision No 1741/1999/EC of the European Parliament and of the Council of 29 July 1999 (OJ L 207 , 06.08.1999 p 1-2)

[31] Communication COM/2003/262 from the Commission to the Council and the European Parliament

[32] Barton, Barry (Ed.) & Redgwell, Catherine (Ed.) & Ronne, Anita (Ed.). (2005). Energy Security: Managing Risk in a Dynamic Legal and Regulatory Environment. p 104

[33] In particular the Directorate-General for Energy and Transport

the 1970s, and continues today to give a high priority to both long term and short term research on renewable energy and energy efficiency technologies.

In November 1998 the Council adopted the EU's energy policy by the decision on a multi-annual framework programme for actions in the energy sector (1998-2002) and connected measures with a budget of € 170 million.[34]

3.2.1. ALTENER PROGRAMME

The goal of the ALTENER programme is to make an essential contribution to increasing use and market share of Renewable Energy Sources, which are environmentally sustainable and constitute a major component of the Community strategy to diminish greenhouse gas emissions.

ALTENER, the only Community programme to focus exclusively on the promotion of renewable energy sources, ended its five-year term at the end of 1997. This goal has been succeeded by ALTENER II[35], which extends activities in the renewable energies field and make a major contribution to the Community Strategy and Action Plan outlined in the White Paper[36] Energy for the Future: Renewable Sources of Energy.

According to Decision 28 February 2000[37] the new investments: "Electricity from renewable energy sources" with the target areas: national indicative targets, support schemes, grid system issues, green electricity, distributed electricity generation. "Heat from renewable energy sources with the target areas: Possible legislation, fuels standards and norms for RES heating and cooling systems, Supply chain and market structures for RES heating and cooling products, promotion and training. Small scale renewable energy sources applications with the target areas: Solar water and space heating and cooling, PV electricity generation, Biomass for domestic heating, including biogas, Small-scale and micro-CHP and heat pumps, Small scale wind and hydro electricity generation.

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[34] Wiessala, Georg (Ed.) & Edwards, Geoffrey(Ed.). (1999). The European Union: Annual Review 1998/1999. p 76

[35] Council Decision (98/352/EC) (OJ L 159, 3.6.1998, p. 53–57)

[36] Resolution on the Commission communication: Energy for the future: renewable sources of energy - White Paper for a Community Strategy and Action Plan (OJ C 210, 06.07.1998 p 215)

[37] Decision No 646/2000/EC of the European Parliament and of the Council of 28 February 2000 (OJ L 79, 30.03.2000 p.1-5)

3.2.2. SAVE PROGRAMME

The principal goal of the SAVE Programme is encouragement of the rational and efficient use of energy resources particularly in buildings[38] and industry. It was the only Union-wide programme dedicated exclusively to promoting energy efficiency and energy-saving behaviour in industry, commerce and the domestic sector as well as in transport through policy measures, information, studies and pilot actions and the creation of local and regional energy management agencies.

The first SAVE programme was adopted by the Council in October 1991[39] and lasted until 1995. Its successor programme SAVE II was adopted by the Council in December 1996[40] for a period of five years (1996-2000). In February 2000[41] SAVE II was integrated into the Energy Framework Programme which outlines the Community's strategy for the five years period 1998-2002[42] and after into the Intelligent Energy - Europe Programme.

3.2.3. SYNERGY PROGRAMME

According to Council Decision[43] of 14 December 1998 concerning a multi-annual programme, SYNERGY finances co-operation activities with non EU countries in the field of the formulation and implementation of energy policy. Actually it is extended form of earlier energy related co-operation projects following the oil crises in the 1980s, with the "EC International Energy Co-operation Programme", which has evolved into today's SYNERGY" programme.

According to the new guidelines Council Decision[44] of 9 April 2001, the implementation of the programme will refocus on activities related to security of supply and implementation of the Kyoto protocol.

3.2.4. CARNOT PROGRAMME

[38] Council Directive 93/76/EEC of 13 September 1993, (OJ L 237, 22/09/1993 p 28-30)
[39] Council Decision 91/565/EEC (OJ L 307, 8.11.1991, p. 34)
[40] Council Decision 96/737/EC (OJ L 335, 24.12.1996, p 50–53)
[41] Decision No 647/2000/EC (OJ L 79, 30.03.2000, p 6-9)
[42] Council Decision (1999/21/Euratom) (OJ L 7, 13.1.1999, p 16-19)
[43] Council Decision (1999/23/EC) (OJ L 7, 13.1.1999, p 23–27)
[44] Council Decision (2001/353/EC) (OJ L 125, 05.05.2001, p 24-26)

Following Council Decision[45] of 14 December 1998 concerning a multi-annual programme of technical actions (1998-2002), the aim is to use clean and efficient technologies to plants using solid fuels in order to limit emissions, including carbon dioxide emissions, to limit emissions, including carbon dioxide emissions, and it encourages the development of advanced clean solid fuels technologies in order to achieve improved Best Available Technologies at affordable cost. Additionally, the priority objectives of the Energy Framework Programme are to be taken into account, which aim at a balanced pursuit of energy policies, namely: security of supply, competitiveness and protection of environment.

CARNOT's objective is the environmentally sound use of solid fuels, from washer plants for upgrading coal, to handling, storage and transport facilities, burning and/or conversion plants, including waste disposal. The term solid fuels covers hard coal, lignite, peat, oil shale and the heavy fraction of petroleum products. When mixed with solid fuels, biomass and refuse derived fuel can also be considered.

CARNOT focuses on the two last stages of the technology maturity, namely commercialisation and market success. CARNOT's efforts should therefore be closely related to market and industry needs.

In the context of the "EU-Russia partnership on energy", actions aiming at identifying CCT projects in Russia which could be considered as financed through the Joint Implementation mechanism of the Kyoto Protocol and, more precisely, the starting up of a pilot project in a coal power plant in Russia.

In the context of the diversification of fuels in the EU and the accession countries, pre-engineering studies of CCT projects that can contribute to the clean and efficient utilisation of competitive indigenous solid fuels.

3.2.5. ETAP PROGRAMME

According to Council Decision[46] of 14 December 1998 concerning a multi-annual programme, ETAP Programme aims to promote a cooperative approach between the Community, the Member States, non-Community countries (including the applicant

[45] Council Decision (1999/24/EC) (OJ L 7, 13.1.1999, p 28–30)
[46] Council Decision (1999/22/EC) (OJ L 7, 13.1.1999, p. 20–22)

countries), international organisations and other interested parties to analysis of energy problems and trends at Community level.

regular monitoring of market developments and energy trends in order that policy decisions can be taken on the basis of a shared analysis, whereby all the decision-makers have access to identical reference bases in terms of economic studies and analyses, energy forecasts and energy system dynamics

3.2.6. SURE PROGRAMME

According to Council Decision[47] of 14 December 1998 concerning a multi-annual programme, SURE Programme aims to improve the safe transport of radioactive materials in the EU and the safety of nuclear installations in countries participating in the TACIS programme by means of increased cooperation in the field of safeguards and industrial cooperation.

The SURE programme's main three objectives are: to review safety relating to the transport of radioactive materials in the Community, to promote industrial cooperation and cooperation between regulatory bodies and the TACIS countries to help those countries achieve high safety standards, and to help the TACIS countries to improve their systems of safeguards.

3.2.7. PHARE PROGRAMME

PHARE can be called as the main channel for the EU's financial and technical cooperation with the countries of Central and Eastern Europe. The PHARE budget is Euro 6.693 billion for the 1995-1999 periods. The PHARE Programme is focused on preparing the candidate countries for EU for accession. In the energy field, this means review of the regulatory and institutional situation in the CEEC countries to bring them, by legislative reform, institution-building and training into conformity with EU energy law. The EU Energy Directives, the Energy Charter Treaty and EU competition law are the most relevant benchmarks for reform of the energy sector in Eastern Europe Support for a twinning mechanism between partner institutions is also used.

[47] Council Decision (1999/21/Euratom) (OJ L 7, 13.1.1999, p. 16-19)

3.2.8. TACIS PROGRAMME

TACIS contains a number of inter-state programmes which launched in 1991 in order to provides grant financed technical assistance to members of the Commonwealth of Independent States (as well as Mongolia), in their transition to democratic market-oriented economies.

It essentially support for institutional, legal and administrative reform, the private sector and assistance for economic development, addressing the social consequences of transition, development of infrastructure networks, promotion of environmental protection and management of natural resources, development of the rural economy, and nuclear safety, where applicable.[48]

INOGATE co-operation programme is aiming at promoting the regional integration of the pipeline systems and facilitating the transport of oil and gas. TRACECA also referred to as Silk Road is established in 1993 (ratified in Baku summit in 1998), aims the EU funded project will enhance regional stability by facilitating the regional exchange of goods and creating a land-based link between Europe and the Caucasus region.[49]

Both INOGATE and TRACECA Programme are funded mainly under the EU's TACIS Regional Co-operation Programme.

3.3. INTELLIGENT ENERGY FOR EUROPE PROGRAMME

According to 26 June 2003 Decision of the European Parliament and of the Council,[50] the framework programme was replaced by the "Intelligent Energy for Europe" programme. Intelligent Energy for Europe is a new EU program to create a new direction and focus for energy policy in Europe for four years, 2003-2006. The budget of IEE Programme was increase with respect to new member states.

The old ETAP, SYNERGY, SURE, CARNOT, ALTENER, and SAVE are consolidated into 4 new programmes: ALTENER for new and renewable energy sources, SAVE for

[48] Gladman, Imogen (Ed.). (2003). Eastern Europe, Russia and Central Asia 2004. p 673

[49] Aydın, Mustafa. (2000). New Geopolitics of Central Asia and the Caucasus: Causes of Instability and Predicament. p 32

[50] Decision No 1230/2003/EC of the European Parliament and of the Council (OJ L 176, of 15.7.2003, p. 29-36)

rational use of energy and demand management, COOPENER for International Energy Support, and STEER for energy aspects of transport.

3.3.1. STEER PROGRAMME

It concerns support for initiatives relating to all energy aspects of transport, the diversification of fuels, such as through new developing and renewable energy sources, and the promotion of renewable fuels and energy efficiency in transport, including the preparation of legislative measures and their application.

3.3.2. COOPENER PROGRAMME

It concerns support for initiatives relating to the promotion of renewable energy sources and energy efficiency in the developing countries, in particular in the framework of the Community cooperation with developing countries in Africa, Asia, Latin America and the Pacific.

3.3.3. HORIZONTAL PROGRAMME

It aims to strengthen local actions by local actors with European cooperation, to support creation of new local and regional energy management agencies, and to support creation of a high-level reflection group of major stakeholder in local actions in energy. It supports financing mechanisms and incentives, including analysis of existing financing schemes as well as development and promotion of innovative financing instruments and incentives Another interest area of the Horizontal Programme is monitoring and evaluation of policies and measures for renewable energy and energy efficiency with indicators and modelling of future trends and policy impacts, leading to better design of future policies.

3.4. SECURITY OF ENERGY SUPPLY

Energy security is depends on the country or region, whether an importer (energy of supply) or exporter (energy of demand), whether developed or developing country, energy security term (short or long term), the geographical scale of the market, what

type of risks are identified as an integral part of energy security and what risk need to be covered to provide secure energy supply.[51]

The most important thing for the security of energy supply is long term availability of energy resources. Since energy resources like oil, gas and coal often far from the consumption areas. It makes necessary international cooperation, investment of exploration, production of resources. Energy security means reliability of energy supply or the security of delivery of energy resources.[52]

As a result of the revival of OPEC, higher crude oil prices and international political instability e.g. the terrorist attacks of 9/11 and the war in Afghanistan that have highlighted anew the risks of disruptions to supply[53], on 29 November 2000 the Commission adopted a Green Paper[54] on supply security, in order to launch a debate on the geopolitical, economic and environmental stakes involved in securing the EU's energy supply.

In European Commission's Green Paper on security of supply, the following risks can be identified: Technical risks include systems failure due to weather, lack of capital investment or generally bad conditions of the energy system. Economic risks cover mainly imbalances between demand and supply due to a lack of investment or insufficient contracting. Political risks outline potential government policies to suspend deliveries due to deliberate policies or war or civil strife or as a result of failed regulation, which is referred to as regulatory risk. Environmental risks describe the potential damage from accidents (oil spills, nuclear accidents) or pollution, including pollution.[55]

It noted that the EU is becoming increasingly dependent on external energy sources - that could reach 70% in 2030 - and acknowledged the need for a strategy to improve

[51] Barton, Barry (Ed.) & Redgwell, Catherine (Ed.) & Ronne, Anita (Ed.). (2005). Energy Security: Managing Risk in a Dynamic Legal and Regulatory Environment. p 57-58
[52] Ibid. p 279
[53] Egenhofer, Christian & Legge, Thomas. (2001). Security of Energy Supply: A question for policy or the markets? p1
[54] Green Paper of 29 November 2000, COM/2000/0769
[55] Egenhofer, Christian & Legge, Thomas. (2001). Security of Energy Supply: A question for policy or the markets? p5-6

energy efficiency and diversify energy supplies notably by the increased use of renewable. There is a need to balance supply policy against clear action for a demand policy. Consumer behaviour must change to orientate demand towards better managed and more environmentally friendly consumption, and to prioritise the development of new and renewable sources to respond to the challenge of global warming. Against this background, the Union has been working towards the ambitious target of a 12% share of renewable energy in gross inland consumption by 2010.

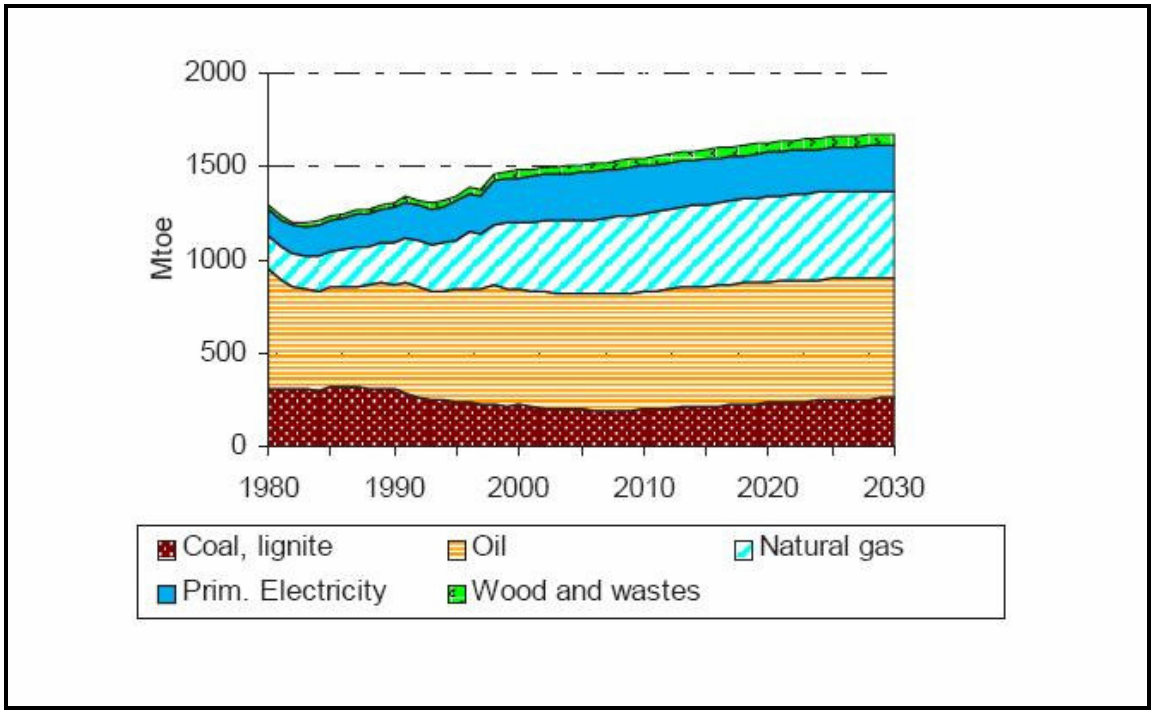
In spite of the significant energy savings and improvements in energy efficiency that have been realised in almost every market segment, there appears to be reasonable consensus that Europe will continue to need more energy over the next 50 years, with growth of demand ranging 0.5 - 1.5 % per year, over the next 20-30 years, depending on economic growth. Yet, there will be quite a large variation among individual countries, regarding the patterns of efficiency improvement, industrial restructuring and the consequent growth in energy demand.

With appropriate investment in the research, development, demonstration and promotion of renewable technologies, for short, medium and long term commercialisation, renewable energy has the potential to help resolve, in an environmentally and economically acceptable way, many issues facing Europe's long term energy supply. In particular, full development of renewable energy sources could play a large part in reducing greenhouse gas emissions from electricity production. However, this would require the early introduction of targeted measures, economic incentives and vigorous marketing.

The external dependence for energy of the EU is constantly increasing. The EU imports 50% of its energy requirements and the EU commission's forecasts if no measures are taken within the next 20 to 30 years this figure will rise to 70%. This external dependence has economic, social, ecological and physical risks for the EU. Energy imports represent 6% of total imports, which means in geopolitical terms that, 45% of oil imports come from the Middle East and 40% of natural gas comes from Russia. The EU does not yet have all the means possible to change the international market. This

weakness was clearly highlighted at the end of 2000 by the strong increase in oil prices. Imports have already arrived 76% of EU primary oil demand it will grows to 94% in 2030. The dependence of natural gas import will increase from 49% to 81% (including LNG). In spite of the disheartening use of coal, its imports are projected to grow too.

Figure 2 EU Energy Consumption



Source: European Commission. (2003). World energy, technology and climate policy outlook 2030 p 26

The Green Paper runs through EU energy strategy as rebalancing its supply policy by clear action in favour of a demand policy, undertaking an analysis of the contribution of nuclear energy in the middle term and providing a stronger mechanism to build up strategic stocks and to foresee new import routes for increasing amounts of oil and gas.

According to Council Directive of 20 December 1968[56], (as amended by Directive 98/93/EC) impose an obligation on Member States to maintain a level of stocks equivalent to 90 days consumption for each of the three main categories of petroleum products for energy use. Note also that some Member States currently hold more than 90 days' stocks, which can be released before any Community consultation.

[56] Council Directive 68/414/EEC (OJ L 308, 23.12.1968 p.14-16)

The Council Directive of 24 July 1973[57] aims to oblige the Member States to be ready to act, for example, to provide themselves with intervention plans, appropriate bodies and powers in particular to enable stocks to be released onto the market, to restrict consumption, to safeguard the supply of priority consumers and to regulate prices. It also aims, in the event of a crisis; the Commission is instructed to arrange for consultation among the Member States for coordination purposes

In terms of fuels shares, the contribution of natural gas strongly increases from 2000 to 2030, at the expense of coal, lignite and oil. At the end of the period, natural gas represents 27% of EU total energy consumption and becomes the second fuel used, behind oil (39%), but ahead of coal and lignite (16%) (See Figure 2).

Table 1 EU's Energy Resources

Energy Resource	Proven resources %	% of the total EU consumption	% of the total world consumption
Oil	0.6	40	18.4
Natural Gas	2.0	24	17.4
Coal	5.5	15	11.0
Nuclear	-	13	35.8
Renewable	-	6	-

Source: BP, Statistical Review of World Energy 2005

Particularly, the consuming countries in the EU – and possibly at a later stage – in Asia that expect to increase their gas imports from Russia, the Caspian Sea region and the Middle East, will be confronted with geopolitical risks to their gas supplies. The international gas market is far from mature and the commoditization of gas, even on a regional scale, lies in the future. LNG could provide greater diversity and flexibility of supply that is desired for security reasons and may, thus, bring about a change in the structure of the gas market. However, the economics of LNG make new developments still fairly expensive and risky, particularly when price volatility persists.[58]

3.4.1. SECURITY OF NATURAL GAS

[57] Council Directive 73/238/EEC (OJ L 228, 16.08.1973 p.1-2)

[58] Hoyos, C.,(2003, 15 August) "Energy companies see a big future for gas. But will the West's increasing dependence imperil its fuel security?", Financial Times, p. 9.

The natural gas is different commodity compared to crude that can be transported significantly with tankers instead of pipeline. The security of gas supply is a different matter, although the expansion of gas consumption and trade will increase the geopolitical risk dimension to gas flows as well. The current rigidity of gas flows can be both an advantage and a disadvantage for security of supplies. On the one hand, supplies cannot be easily redirected to other preferred consumers because pipelines create a captive market for producers and consumers alike, and on the other hand, regional or indigenous conflicts immediately jeopardize that market without much alternative supplies available.

The short term supply situation for gas is relatively comfortable in terms of reasonable reserves within an economic distance. In the medium to long term, however, it remains to be seen whether gas is able to defend or even increase its market share due to probable rises in exploration, exploitation and transportation costs. In the event that Russia and the former Soviet republics are called upon to supply the growing markets in East Asia, EU countries could face significant competition and increased prices. A set of measures aimed at promoting technological developments, supply diversification and gas-to-gas competition, integration of markets in a wider Europe as well as reinforced relations with external supply and transit countries would enhance supply security.

It is predicted that 41% of the increase in total energy to be used for electric power production will be met by natural gas. Even though EU gas demand is growing, it is not a security problem since abundant gas resources and a potential exists for technological improvements concerning gas production, transport by pipeline, and LNG plants and carriers. However, appropriate policies need to be developed and implemented to limit the risk factors related to geopolitical events or to the requirements of massive investments for gas infrastructure. In this respect, international cooperation and partnerships between EU and key producing countries bringing a stable framework for investment and trade, as well as the diversification of transport routes and further

integration of the European gas networks are certainly important elements for the security of EU gas supply. [59]

There is a higher supply risks for the EU. Directive 2004/67/EC[60] of 26 April 2004 concerning measures to safeguard security of natural gas supply. These risks could however be limited through different actions as outlined in the European Commission Green Paper, like the multiplication of gas transport routes, the further integration of the European gas network, and a continuous dialogue with gas producing countries. EU has been trying to encourage the establishment of new import capacity through TEN or INOGATE.[61] Long-term contractual LNG supplies are projected to move up but more moderately and from more diverse sources from Africa and the Middle East.

As a short term security of supply in gas can be realized liberalisation and more efficient price and for long-term security of supply of gas is related to financing and investment. In the gas sector, considerable investment is needed for infrastructure, especially upstream. Another concern is strategic in nature, i.e. (political) problems resulting from the dependence on foreign sources of supply, i.e. Algeria and Russia. For this reason, diversification of gas sources is not possible to the same extent as it is for oil. A number of measures have been proposed that are likely to contribute to security of supply. The development of other infrastructure, such as storage and LNG, can provide alternative sources of supply in case of disruptions. International agreements such as the Energy Charter Treaty or the EU-Russian energy partnership could be useful in providing an umbrella under which companies can internationally trade and invest. [62]

Take-or-pay Contracts is a common type of long-term indirect guarantee arrangement. The aim is to guarantee both the purchaser and the consumer countries against the failure of either party, since such long-term (25 years or more) agreements need billions of dollars investment. Thus, if the consumer country fails to complete its commitments, it still must pay the cost of the gas, whether it consumes it or not. Similarly, if the

[59] European Commission. (2003). World energy, technology and climate policy outlook 2030-WETO. p96
[60] Council Directive 2004/67/EC of 26 April 2004 (OJ L 127 , 29.04.2004 p 92-96)
[61] Luciani, Giacomo.(2004). Security of Supply for Natural Gas Markets What is it and what is it not? p 15
[62] Egenhofer, Christian & Legge, Thomas. (2001). Security of Energy Supply: A question for policy or the markets? p 18-19

purchaser fails to supply the volume of gas agreed upon in the contract, it must compensate for the losses of the consuming party. Take-or-pay contracts are called "hell-or-high-water contracts", because the payment for the project product and service must be made unconditionally by the purchaser regardless of any circumstance frustrating the production of delivery.[63]

In addition to underground storage, however, natural gas can be stored as LNG which allows natural gas to be shipped and stored in liquid form, meaning it takes up much less space than gaseous natural gas. Natural gas is usually stored underground, in large storage reservoirs. There are three main types of underground storage: depleted gas reservoirs, aquifers, and salt caverns Natural Storage is a vital part of the gas chain. In the traditional markets, it performs three different functions to the gas operators: The first one is flexibility that load balancing at any time, hourly, daily, weekly or seasonally, and more flexibility to end-users; fulfilment of minimum take-or-pay obligations in times of low demand. Second one is security, for example some European companies have built storage facilities as a buffer against interruption of supplies and they maintain strategic reserves to ensure security of supply. And the last is more-efficient grid design; storage allows a more-efficient design of the grid. Storage can cover peak demand and so the pipeline can be smaller and more fully used throughout the year.

3.4.2. SECURITY OF OIL

The EU dependence on oil imports, which is already particularly high at 75% of its oil supplies in 2000, is likely to increase yet further and exceed 85% by the year 2020. In 2000, 43% of EU oil supplies came from OPEC countries, 30% of these from the Persian Gulf. More than 70% of world's oil reserves are in OPEC member countries. In 2020, 40% of the world's production will come from the Persian Gulf. The cost of producing oil in the Middle East is low and supplies in this area are relatively abundant. However, uncertainty surrounds future investment levels and physical availability of Middle East reserves. North Sea oil is expensive to exploit and reserves are limited

[63] Buljevich, Esteban C. & Park, Yoon S. (1999). Project Financing and the International Financial Markets. p 189

(estimated 25 years' supply at current production levels). Europe's reliance on Middle East and OPEC oil is likely to be virtually complete in the long term, providing that supplies are technically and geopolitically available. In the past, reductions in energy intensity and the replacement of oil in heat and power applications transformed the market for oil. Nevertheless, demand continues to rise.

Despite the relatively low oil prices of the past 15 years and the fact that OPEC's share of the world market was modest, compared to their share in oil reserves, the major consumer countries began to worry about the future structure of supply, when Non-OPEC supplies will begin to decline. Strategies to balance the foreseen increase in dependence on Middle East oil, already led to fierce competition for control over Caspian Sea resources and the pipelines routes that would bring out the oil among these consumer countries. The conflict over Iraq highlights the strategic importance of access to relatively low cost oil and gas reserves.

As a consequence, global oil prices not only failed to subside after the war in Iraq, they actually have risen still higher. When we look Figure 1 the recent oil price goes up. After the Iran's Nuclear Crisis, the oil price firstly hit all-time high of $75.35[64]. In July 2006 after Israel intensified its attacks on Lebanon, it hits $78.03.[65] Some pessimist estimations highlight the oil price will soon exceed $100.[66]

The common energy policy of EU is to pursue its dialogue with OPEC and its principles member countries in order to obtain significant price transparency and in long term stable price. The EU has launched dialogue with Russia and strengthened its cooperation with Central Asia, the Caucasus and the Mediterranean partnership.[67]

It also promotes a more open and competitive structure in the fuel distribution sector. A critical factor lies with the development of a real internal market for refined products to make for ready and competitive supplies to all distributors, including those which are not national refineries.

[64] Reuters. (2006, 28 April) Oil rises on Iran nuclear jitters
[65] BBC News. (2006, 14 July).Israel crisis keeps oil near peak. ISRO, the Journal of Turkish Weekly
[66] Blythe, Nils. (2006, 14 July). Why oil will hit $100 a barrel. BBC News
[67] Egenhofer, Christian & Legge, Thomas. (2001). Security of Energy Supply: A question for policy or the markets? p 17

European commission is proposing upward harmonisation of tax rates between Member States. Therefore, the temptation to offset price by tax cuts should be discouraged. Transport is the largest consumer of oil products, more than 80% of which are consumed by road haulage. EU aims achieving a balance between modes of transport. EU is encouraging public transport, rail network and short sea shipping. Another energy policy of EU is making Europe's economy less oil intensive.

3.5. ENERGY EFFICIENCY

The aim of energy efficiency is to make better use of energy. It reduces consumption of energy with promoting consumer behaviour, working methods and manufacturing techniques which are less energy-intensive. Energy efficiency also reduces import dependency with respect to security of supply. Since energy demand reduces, the flexibility is the flexibility of whole energy chain increases. On the other hand, energy efficiency directly depends on technological development. For instance are more efficient compare with 20 years ago.[68]

Energy efficiency is related with EU energy and environmental policy. One of the targets of Kyoto Protocol is greater energy efficiency. The action plan is a follow-up to the Commission communication adopted in April 1998 on the rational use of energy and the Council resolution on energy efficiency. It constitutes a framework for Community activities in this area and applies until 2010. With the SAVE programme (under the EU energy framework and Intelligent Energy for Europe), EU reinforces and supplements its energy efficiency policies and launched coordination with Member States. SAVE program was amended with EU energy efficiency Directive 2006/32/EC.[69]

On of 22 June 2005, the EU Commission launched The Green Paper[70] on energy efficiency in order to start a discussion on how the EU countries can benefit from cost-

[68] Egenhofer, Christian & Legge, Thomas. (2001). Security of Energy Supply: A question for policy or the markets? p 11-12

[69] Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 (OJ L 114, 27.04.2006 p 64-85)

[70] Green Paper of 22 June 2005, COM/2005/0265

effective energy efficiency measures. The Green Paper[71] designates energy efficiency as the first pillar of security supply.[72]

3.6. SINGLE ENERGY MARKET & MARKET LIBERILIZATION

The new EU regulations for competitive internal market get rid of the traditional EU energy policies such as differences in taxes on energy products, national monopolies, and governmental interventions. According these EU regulatory, the market is more secure, transparent, accessible and externality. The member states are committed to maintain minimum stock of oil, inform and consult the commissions on the development of prices and foreign supplies. EU has the common rule for market access instead of monopoly market in electricity and gas market. The taxation of energy differences in member states requires new harmonisation in the internal market.[73]

Markets for electricity and gas are in the process of liberalisation in all EU Member States, as a result of the EU Electricity Directive and Gas Directive.[74] In addition, electricity producers and gas suppliers are increasingly privatised. Since the 3rd National Communication further Directives have been passed on the common rules for the internal markets in electricity[75] and gas[76]. 18 January 2006 Directive[77] aims safeguard security of electricity supply and infrastructure investment.

Electricity prices for industrial and domestic consumers have decreased in real terms in almost all Member States due to increased competition. However, due to a number of factors, including increased fuel prices and the introduction of a price for carbon dioxide, electricity prices have recently substantially increased in absolute terms. The most significant price reductions can be found in the Member States with liberalised energy markets. The picture is less clear for gas; markets were liberalised later and the

[71] Green Paper of 29 November 2000, COM/2000/0769
[72] Egenhofer, Christian & Legge, Thomas. (2001). Security of Energy Supply: A question for policy or the markets? p 11
[73] Molle, Willem. (2006). The Economics of European integration: Theory, Practice and Policy. p 192
[74] Commission Staff Working Paper. SEC(2001) 438 Completing the internal energy market
[75] Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 (OJ L 176, 15.7.2003, p. 37–56)
[76] Directive 2003/55/EC of the European Parliament and of the Council of 26 June 2003 (OJ L 176 , 15.07.2003 p 57-78)
[77] Directive 2005/89/EC of 18 January 2006 (OJ L 33 , 04.02.2006 p 22-27)

gas price since liberalisation has been significantly influenced by the increase in the crude oil price in the last couple of years and the development in the € / $ exchange rate. However, energy prices have been relatively low in real terms and this has had an adverse effect on energy demand reduction and on the cost-effectiveness of energy efficiency measures and alternative energy sources.

The EU supports long-term contracts for industrial electricity users to shield themselves from the volatility of the market. The main advantage of long-term contracts is that encourage investment in a very capital-intensive, slow-return industry by allowing investors to manage their investment risk.

Finally, electricity markets within the EU are varied. However, it is obvious that interconnectivity is low and that pricing is complex and dependent on the regulatory framework, capacity and global energy prices. Long-term contracts are necessary for improved stability, efficiency and competitiveness.

3.7. THE ROLE OF RUSSIA ON EU ENERGY POLICY

During the threatening years of the Cold War (1960s-1990s) one of USA's greatest worries was that the Soviet Union would gain influence over Europe's sources of oil and gas in the Middle East. But in recent years, the leading members of the EU, especially Germany and Italy, have been making themselves dependent on Russia directly by subsidizing Russian oil, gas, and pipelines. Changes in basic economic dependencies inevitably undermine old alignments and lead to new strategic flirtations, if not alliances.[78]

After the EU-Russia Summit in Paris in October 2000, it was agreed to launch an energy dialogue which is based on the assumption that interdependence between the two regions will grow. From EU side vitality of security supply from Russia as the primary supplier and on the Russian side vitality of new foreign investment and facilitates its own access to EU and world markets are the major goals. The Commission has provided technical assistance through the TACIS programme.

[78] Arbatov, A.G. & Kaiser, Karl & Legvold, Robert (ed.).(1999). Russia and the West: The 21st Century Security Environment Volume 1, p113-118

EU energy strategy aims at enhancing the security of energy supply and the market stability on the European continent. Especially Northern European Trans-Baltic natural gas pipeline is one of the high priority projects that can prevent the interruption or stealing of Russian gas flow by Ukraine or other transit countries. In the short term Russia is keen to increase its gas sales in Europe. The country will have to raise its production and export capacities as well as secure more reliable means for gas exports. The Russian energy sector needs technology transfers and investments in order to modernise and upgrade existing infrastructure and develop new infrastructure.

In order to ensure the smooth transit of oil and gas both between and across countries, essentially in accordance with open access principles, Energy Charter has prepared Transit Protocol which was rejected by Russia. Therefore, the access for Caspian producers to the GAZPROM controlled Russian pipeline system couldn't open up. After the Blue Stream Russia proposes exporting gas to West Balkans and Italy as an alternative of Caspian Region's gas. On the other hand this proposal causes big conflict with EU diversification policy.[79] It is obvious that GAZPROM want to axe and make obsolete TCP in order to keeps on its hegemony over Europe.

The last decade, Russia made significant manoeuvre towards controlling the alternative gas resources in Russian "Near Abroad"[80]. Their first aim is controlling Trans Caucasus military and economically[81]. While Turkey, EU and the US desire mere bringing the Turkmenistan gas into Turkish and European markets, GAZPROM swiftly signed an agreement with Turkmenistan's Turkmenneftegaz on April 10, 2003. Similar agreements were signed with Uzbekistan and Kazakhstan in 2002.[82]

Beginning of the 2006, Russia's attempt to more than quadruple the price of the gas it charges to Ukraine, since Ukraine's recent turn to the west, including NATO and the EU. Russia wishes to bring its previous vassal states back into its influence. Indeed, threatening to increase Ukrainian gas prices to western free market levels indicates

[79] Roberts, John. (2004). The Turkish Gate Energy Transit and Security Issues. p 12

[80] Many Russians use the term "Near Abbroad" (*blizhneye zarubezhiye*) to refer to the fourteen other former Soviet republics

[81] Gül, Atakan & Gül-Yazgan, Ayfer. (1995). Avrasya Boru Hatlari ve Türkiye.p 37

[82] Pamir, A. Necdet (2006). Energy Security and The Most Recent Lesson:The Russia-Ukraine Crisis. p 9

Russia will use its new energy weapon over the dependant countries.[83] Actually it is not only punishing Russian old satellites but also intimidate all the other dependant countries including EU. Because of energy dependency, any interruption of Russian supply is a big threat for Baltic republics and Central European members such as Poland and Hungary.[84] Russia is playing this game very effectively and successfully. In Russian gas agreement hiking prices which are either equal to or still less than the international prices. Thus the prices depend on the countries' relations with Russia, too.[85]

Nowadays, Russia and the EU have complementary geopolitical, economic and cultural interests and are natural energy partners. The following figures demonstrate their energy interdependence: According to 2003 data, 58% of Russian oil exports and 60% of the natural gas exports were to the EU. In other words 22% of total net EU oil imports and 32% of EU gas imports came from Russia.

Development of energy relations between the EU and Russia is a key to enhancing investment opportunities in the Russian energy sector, modernising infrastructures, and promoting energy efficiency and environmentally friendly technologies.

3.8. ENVIRONMENT POLICY

The issue of climate change is one of the major issues considered in the European energy policy. The Kyoto Protocol (1997) requires a worldwide reduction of greenhouse gas emissions by 5.2 % in 2010 from its level of 1990[86]. The EU has committed itself to reducing its greenhouse gases by 8% below 1990 levels, by the period 2008-2012. The objective of sustainable development is to attain a reasonable balance between security of supply, satisfaction of social needs, competitive energy services and environmental protection.[87] The integration of sustainable development into energy strategy creates a new context for energy security, as it constitute a challenge for energy consumption in Europe.

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[83] Litvin, Daniel. (2006, 4 January). Oil, gas and imperialism. The Guardian

[84] Luciani, Giacomo. (2004). Security of Supply for Natural Gas Markets What is it and what is it not?. p 9

[85] Pamir, A. Necdet (2006). Energy Security and The Most Recent Lesson:The Russia-Ukraine Crisis. P 13-14

[86] The target agreed at the Marrakech Conference of Parties, November 2001

[87] European Commission, Integrating Environmental Aspects and Sustainable Development into Energy Policy, 2001.

The first European Climate Change Programme[88] of 23 October 2001was launched. It is a stakeholder structure under which the Commission debates with industries and NGOs and prepares new cost-effective measures to fight climate change. ECCP identified and implemented around 30 measures: the emission trading scheme, the "linking directive", and the directive on the promotion of electricity from renewable or the voluntary agreement with car producers to reduce CO_2 emissions from cars.

On 25 April 2002 the Council ratified the Kyoto Protocol[89] that the EU Member States collectively must reduce their greenhouse gas emissions by 8%.

This issue crosses over between strategic and domestic system risks. The focus on environmental issues has increased in recent years and everything from climate change and greenhouse gas emissions to the disposal of nuclear waste and nuclear safety presents potential challenges to security of supply. The 2003 White Paper identified the environment as the first challenge to the future and reducing emissions as one of the main objectives of energy policy.

The increased use of natural gas over coal to generate electricity has produced benefits to the environment through the reduction of harmful emissions. This cannot be left out when considering the dash for gas. Had the market not liberalized then environmental considerations alone may well have fuelled the shift to gas though perhaps not as rapidly.

In January 2005 the EU Greenhouse Gas Emission Trading Scheme, which bases on Directive 2003/87/EC[90], commenced operation as the largest multi-country, multi-sector Greenhouse Gas emission trading scheme world-wide.

ECCP II started in 2005. It will review what has been achieved with ECCP and focus furthermore on carbon capture and storage, inclusion of the transport sector into the ETS and adaptation policies.

3.8.1. COAL POLICY

[88] Communication from the Commission of 23.10.2001, COM/2001/0580
[89] Council Decision 2002/358/EC (OJ L 130, 15.05.2002 p.1-3)
[90] Directive 2003/87/EC of the European Parliament and of the Council, (OJ L 275, 25.10.2003 p.32-46)

Since last a few centuries coal is attractive from an economic and energy supply viewpoint. There are extensive worldwide reserves, including in Europe, and competitive, well supplied markets keep prices low and stable. However, coal has been removed from homes (air pollution) and, more recently is used for electricity generation, where gas is the preferred choice. Restructuring of the steel industry has also removed an important customer. In the long term, coal is likely to remain important as new technologies come on stream which reduce extraction costs, reduce emissions and dramatically increase its efficiency. After the expiry of the ECSC Treaty in 2002, mechanisms will remain to monitor prices and promote clean technologies. Thus, it is likely that coal will continue to be used for electricity generation in the long term, to the benefit of energy diversity and security of supply.

3.8.2. RENEWABLE ENERGY POLICY

There is considerable political agreement on the desirability of promoting renewable sources of energy as part of the future fuel mix of Europe, as it contributes the energy policy: environments and security of supply. The EU Commission has set a goal to double the share of renewable in gross indigenous energy consumption from 6% to 12% in 2010.[91] However, in order to reach this goal, specific and targeted action will be necessary. As well as technical and practical barriers, a major obstacle is the high cost of RES technologies compared to the cost of fossil fuels based technologies. This suggests the need for appropriate financial incentives to promote renewable. Another obstacle is the exclusion of external costs from the price of fossil fuels, coupled with an inheritance of subsidies on the part of conventional energies (including nuclear). This indicates that RES do not compete on an equal basis with conventional fuels. Helped by technology advances, costs in some sectors, e.g. wind, have fallen dramatically over the previous decade and continue to fall.

3.8.3. NUCLEAR ENERGY POLICY

Nuclear energy is one of the major sources of energy supply in the world contributing about one-sixth of total electricity generation. Nuclear energy is a way of creating heat

[91] Resolution on the Commission communication: Energy for the future: renewable sources of energy - White Paper for a Community Strategy and Action Plan (OJ C 210, 06.07.1998 p 215)

through the fission process of atoms. All power plants convert heat into electricity using steam. The principal advantage of nuclear energy is that it is very clean. It releases no emissions to the environment.

The main assistance of EURATOM is allocated to nuclear power stations and industrial involvement in the fuel cycle within the Member States. Therefore nuclear energy in the EU has been facilitated by international treaties, specific agencies and government financing.[92]

Although nuclear energy accounted for a very small part of energy supply in 1970, in response to the two oil price increases in the 1970's, the EU is currently dependent on nuclear generation for a significant part of its electricity supply (23% of installed electricity generation capacity and 35% of electricity production).

After the accidents around nuclear power stations brought into focus the dimensions of the safety risks of this technology, while environmental concerns went against coal-fired power generation although nuclear power produces very few greenhouse gases

Enlargement of the EU is likely to confirm this situation, because, in general, many of the applicant countries are in a similar situation to nuclear producers within the EU.

During 1991-1996 the nuclear safety programme focused on Ukraine. SURE programme also focused on the safety transportation of radioactive materials and development of safeguards and international co-operation to promote safety nuclear installation. Moreover, EU Nuclear safety Strategy Paper was adopted in January 2002.[93]

Looking beyond 2010, the long lead-in time for energy technology means that it is essential to maintain long-term research, partly to find a solution to the problem of waste and partly to hand down nuclear expertise to future generations.

[92] Evans, Andrew. (1999). The EU Structural Funds. p 199
[93] Gladman, Imogen (Ed.). (2003). Eastern Europe, Russia and Central Asia 2004. p 673

IV TURKEY'S ENERGY POLICY

4.1. REGIONAL POTENTIAL OIL AND GAS DISPOSITION

Turkey is located between Europe and the Middle East Region, Caspian Sea Region, Northeast Africa and Russia which possess 69.3% of the world's proven natural gas reserves (122,550 bcm out of total world proven reserves of 179,530 bcm) and some 72.3% of the world's proven oil reserves (857.5 billion barrels out of total world proven reserves of 1186.6 billion barrels). [94]

Map 1 **Existing Natural Gas Pipelines**

Source: http://www.eia.doe.gov/cabs/Caspian/images/caspian%20gas%20pipe_map.pdf (Accessed on 05/04/2006)

[94] BP, Statistical Review of World Energy 2005. p 4,20

Even if Russia is excluded, the rest regional countries as many as 10 current producers, collectively possessing 35.5% of global proven gas reserves, either have, or might reasonably be expected to have, an interest in directing exports to Europe via Turkey. It is very important potential and Europe can not avoid this reality while their future energy policy is diversifying energy resources.

Table 2 Turkey's gas-producing neighbours (2004)

Country	Bcm	%
Caspian/Central Asia	**9,130**	**5.1**
Azerbaijan	1,370	0.8
Kazakhstan	3,000	1.7
Turkmenistan	2,900	1.6
Uzbekistan	1,860	1.0
Middle East	**63,570**	**35.5**
Iran	27,500	15.3
Iraq	3,170	1.8
Qatar	25,780	14.4
Saudi Arabia	6,750	3.8
Syria	370	0.2
Northeast Africa	**1,850**	**1.0**
Egypt	1,850	1.0
Russia	**48,000**	**26.7**
World	**179,530**	**100.0**

Source: BP, Statistical Review of World Energy 2005

When we look at the Europe future energy policy, indeed, oil pipelines across Turkey do play and it will play a major role in the global energy market since it is intersection of Iraqi, Azeri oil pipeline. However we can't call it vital role, it might be one of the significant role. Crude oil is essentially a fungible commodity; it is more flexibly transported than gas (notably by sea transportation with giant tankers) and Turkey's role in this context is the related to not only the EU alone but also the global energy supply system. Thus, the natural gas affair is more complex and Turkey's both current and potential role for EU context is indispensable and much greater than oil. However, as Brussels emphasizing Turkey is at the intersection of all pipelines carrying oil and natural gas.[95]

[95] Gultasli, Selcuk.(2006, 11 March).Turkey Included in EU's Strategic Energy Projects. ISRO, the Journal of Turkish Weekly

The pipelines through Turkey can be classified in two groups. First are those on the east-west corridor, carrying Caspian or Persian Gulf oil and gas. Second are those on the north-south corridor, carrying Russian oil and gas. Although the EU hopes that Turkey's Energy infrastructure will decrease dependency on Russian gas; Russia will still play a significant role in providing Europe with gas along the north-south corridor.

Table 3 Turkey's Oil Imports

Country / Region	Million tons	%
Iran	3.6	4.88
Iraq	4.2	5.70
Libya	3.5	4.75
Saudi Arabia	5.5	7.46
Russia	0.5	0.68
Syria	2.8	3.80
Algeria	1.2	1.63
Egypt	2.1	2.85
TOTAL	**23.4**	**31.75**

Source: BP, Statistical Review of World Energy 2005

The EU is the world's biggest gas import market since it is also one of the world's fastest-growing energy markets. It possesses a variety of energy import sources (especially Russia, Norway and Algeria) but it is naturally seeking to diversify supplies. Turkey's potential role is extremely important in that it creates a natural corridor through which gas from a wide variety of suppliers in an arc from the Caspian through the Middle East and the Persian Gulf to Egypt can access the growing EU market by pipeline. EU has already started exporting of large volumes of gas from three main sources: Russia, the North Sea and North Africa. Turkey's main aim is to become Europe's fourth main artery. "Turkey will in the near future turn into the fourth artery of Europe's energy supply security" is the current Turkish energy policy.[96]

Turkey will play an important role in future strategies for the development and exports of crude oil and natural gas from the Caspian region for several reasons. First of all, its geographic proximity and expected robust growth in indigenous energy demand (particularly for natural gas), Turkey is a natural market for Caspian hydrocarbon

[96] Açıkgöz. (2003, 2 April). Council of Europe Report

resources. Turkish gas use is projected to increase by as much as 10% per year with depends on its growing economy and population. BOTAS is making arrangements to supply by 2010 some 67.6 bcm/y from various sources (See Table 6). Secondly, the Turkish national oil company TPAO is involved in oil production activities in the region, including AIOC project offshore Azerbaijan. Thirdly, Turkey provides one of the principal and most feasible routes for Caspian oil and gas deliveries to Europe that do not require transit through Russia.[97]

The BTC crude oil pipeline would bypass not only Russia, but environmentally sensitive Turkish Straits. A serious tanker accident in the Straits could potentially disrupt the flow of oil from the region. A pipeline bypassing the Turkish Straits would enhance energy security by increasing the number of export options.

The result of these developments again focuses the people attention on the oil and gas of the Caspian Region. While control over the export of Caspian oil and gas will not by itself determines the alignments and alliances of the world's major countries, it will certainly be an important factor. This control will decide whether the governments of the region provide oil and gas to the West on a commercial basis or attach strategic and political strings, as do Russia and the Middle East.[98]

Finally, besides being a significant importer of crude oil and natural gas, Turkey has a geo-strategic position at the crossroads of rich Caspian Sea and Middle East reserves and energy hungry European markets.

4.2. CRUDE OIL

Decisive elements for future oil requirements are the dependence of the expanding transport sector on oil, the risk of price fluctuations and the development of alternative transport fuels. As a consequence of Turkey's geographical location and its growing, open and competitive energy market, most of supply routes transiting Turkey as a transit country. Turkey's energy consumption is growing much faster than its production. Depends on population, economy and energy demand growth, Turkish oil consumption has increased in recent years.

[97] IEA. (2001). Oil Supply Security: The Emergency Potential of IEA Countries in 2000. p 266
[98] Croissant, Michael P. & Aras, Bulent. (1999) Oil and Geopolitics in the Caspian Sea Region.pp115-116

Table 4 Turkey Crude Oil Transportation by Pipelines in 2005 (Thousand Barrels)

	IRAQ-TURKEY COPL	CEYHAN - KIRIKKALE COPL	BATMAN - DÖRTYOL COPL	SELMO - BATMAN COPL
1990	339.939	21.13	22.544	1.526
1991	-	17.697	27.944	1.332
1992	-	20.374	25.732	1.295
1993	-	24.21	23.041	804
1994	-	22.648	22.289	1.088
1995	-	24.887	20.146	832
1996	5.215	29.642	16.979	751
1997	134.562	27.644	18.753	703
1998	277.671	23.435	17.128	644
1999	305.603	28.897	17.767	611
2000	285.716	24.751	18.904	825
2001	230.855	24.779	19.836	793
2002	175.667	26.51	18.482	691
2003	60.824	26.357	9.417	851
2004	37.685	24.601	9.488	767
2005	13.166	25.986	10.108	634

Source: http://www.botas.gov.tr/eng/activities/crudeoil.asp Botas (Accessed on 05/05/2006)

Turkey's proven oil reserves are very low oil and production is around 1.6 million tonnes and constitutes only around 5% of its oil consumption. In 2002 imports of petroleum and petroleum products totalled $5.3 billion. Approximately 7% of electricity generation is based on oil fuel. Turkey's oil consumption is projected to rise at an average rate of about 5.5% to 50 million tonnes in 2010. TPAO's exploration activities have decreased significantly to below the warranted level. On the other hand, TPAO and BP have recently started a joint exploration in the Black Sea. BTC pipeline is also a significant development for Turkey's position as a conduit for oil and energy in general.

Around 90% of Turkey's oil supplies are imported, mainly from the Middle East (Saudi Arabia, Iran, Iraq, and Syria) and Russia. Kirkuk–Ceyhan crude oil pipeline is one of the most important outlets of the Iraqi oil exports.

Three main companies have the majority of Turkey's oil production: Turkish 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) and Aladdin Middle East (480 bbl/d in Siirt and Gaziantep). TPAO alone accounts for about 80

percent of the country's total oil output (currently around 43000 bbl/d, down from 90000 bbl/d in 1991).

Turkish oil fields are generally small, and scattered around the country. The oil fields in the Southeast Turkey are old, and expensive to bore. Beside of Southeast Turkey, Turkey contains oil prospects in Thrace, in the Black Sea shelf region, and in other oil basins in Southern and Southeast Turkey. Potential oil reserves in the Aegean Sea have not been explored due to conflicting Greek claims over the area.

TUPRAS is Turkey's major oil company which has four refineries: Kirikkale (5 mt), Batman (1.1 mt), Izmit (11.5 mt) and Aliaga (10). Another refinery is ATAS (4.4 mt) near Mersin, is operated as a joint venture between Mobil (51%), Shell (27%), BP Amoco (17%) and Marmara Petrol ve Rafineri Isleri (5%). [99]

Finally, Lack of rich oil resource, the oil production in Turkey is not enough for its demand. (See Table 4) Therefore, Turkey exports most of its oil requirements from oil producer. As a result of BTC and Kirkuk–Ceyhan crude oil pipeline are a kind of aorta for Turkish oil policy. Turkey assume in the near future a major role in the transportation of rich reserves of 200 bbl crude oil and 9,130 bcm natural gas of the Caspian Region to the world markets and to the European markets in particular.

4.2.1. EXISTING OIL PIPELINES

4.2.1.1. Kirkuk-Ceyhan crude oil pipeline

Kirkuk oil was discovered in 1927 and it still produces up to 1 million bl/d, almost half of all Iraqi oil exports. The Iraq-Turkey Crude Oil Pipeline System has been constructed within the frame of the Iraq-Turkey Crude Oil Pipeline Agreement that was signed on 27 August 1973 between the Governments of Turkey and Iraq. Its main goal is transporting the Iraqi crude oil produced mainly in the Kirkuk Region and other areas of Iraq to the Ceyhan-Yumurtalik Terminal. Initially 986 km long system with an annual transport capacity of 35 MT/y was commissioned in 1976 and the first tanker was loaded on 25 May 1977.

[99] IEA. (2001). Oil Supply Security: The Emergency Potential of IEA Countries in 2000. p 266

The first pipeline was proved that the pipeline is vital for Iraqi oil transportation to Europe's market. As a result, expansion and the second pipeline construction have been decided. The First Expansion Project which was increased the capacity of the line to 46.5 MT/y, was completed in 1984. After first expansion the Second Pipeline, which is parallel to the first one, was started in 1985. In 1987 the completion of the Second Pipeline 890 km system, the annual capacity reached 70.9 MT/y.

After the first Gulf War an embargo imposed on Iraq by the United Nations, the operation of the pipeline system was suspended on August 1990. The suspension was ceased under the agreement of UN and Iraq, UN Resolution[100] of 14 April 1995 and limited oil export was allowed under the "Oil for Food" company. Crude oil loading activities was started on 16 December 1996. Due to lack of Iraq's ability to export its oil production depending on war and Ceyhan Terminal storage facilities that reached to maximum capacity, the Iraq-Turkey Crude Oil Pipeline operations was halted on 9 April 2004. In 2004, only 5.12 MT/y tons of oil was transported by Kirkuk-Ceyhan Crude Oil Pipeline.

Turkey's port of Ceyhan is a major outlet for Iraqi oil exports, with optimal pipeline capacity from Iraq of about 1.5-1.6 million bl/d, but oil flows have been only sporadic since late March 2003, following the outbreak of the Iraq war. End of the Iraq War, occupation of Iraq by Alliance Power the embargo was lift. However the oil transfer couldn't reach its optimum capacity, because the pipeline has endured much sabotage.[101] Overall, between April 2003 and late November 2006 there were an estimated 374 attacks on Iraqi energy infrastructures, including the Kirkuk-Ceyhan crude oil pipeline system.[102] Meanwhile, Israel seeks an alternative pipeline between Mosul and Haifa.[103] North Iraq Kurds and USA supports this plan. Turkey discourages this plan which can trim its future transit country plans. Therefore Kirkuk-Ceyhan Oil pipeline is one of the

[100] UN Resolution 986 (1995), Oil for Food

[101] Pamir, A. Necdet. (2006). Energy Security and The Most Recent Lesson:The Russia-Ukraine Crisis. p 21

[102] Iraq Pipeline Watch Attacks on Iraqi pipelines, oil installations, and oil personnel. IAGS Energy Security

[103] Eldar, Akiva. (2003, 1 April).The Pipeline to Haifa. CounterPunch

main veins of the Iraq-Turkey relations and in order to avoid new independent Kurdish state in Middle East.

4.2.1.2. BTC Baku-Tbilisi-Ceyhan crude oil pipeline

BTC project is over $3 billion investment to unlock a vast store of energy from the Caspian Sea by providing a new crude oil pipeline whose regional significance as it represents the first direct transportation link between the landlocked Caspian Sea and the Mediterranean, the BTC project will bring positive economic advantage to the region and avoid increasing oil traffic through the vulnerable Turkish Straits. BTC aims to harmonise the legal and technical standards for the energy sector, to improve energy supply and demand management, to enhance the safety and security of energy supplies, to promote the financing for commercially and environmentally-viable energy projects of common interest.[104]

The BTC pipeline is developed for the purpose of transporting up to 1 million b/d of crude oil from a cluster of discoveries in the Caspian Sea, known collectively as the ACG oil field and will stretch 1,760 km from Baku through Georgia to Ceyhan in southeast Turkey. The oil will be transported to the world market by loading tankers at Ceyhan Terminal. BTC is owned by the BTC Company whose shareholders comprise a group of eleven petroleum companies with upstream interests in the Caspian region. BP will act as operator of the pipeline on behalf of BTC Company.[105]

On 15 May 1998, after all studies and negotiations on realisation of the Project, Turkey, Azerbaijan and Georgia signed a MOU that involved the decision of the establishment of working groups for each country. The "Intergovernmental Agreement of the Project" has been signed by the Presidents of Turkish Republic, Republic of Azerbaijan and Georgia during the OSCE Summit-Istanbul on 18th November 1999. USA President Bill Clinton has also signed the Agreement as witness.[106] The Intergovernmental Agreement was approved by the Azerbaijan, Georgian and Turkish Parliament until end of June 2000.

[104] Piebalgs, Andris. (2005, 25 May). BTC opening ceremony
[105] Croissant, Michael P. & Aras, Bulent. (1999) Oil and Geopolitics in the Caspian Sea Region. Pp73-76
[106] Starr, Frederick S. (Ed.), Cornell, Svante (Ed). (2005). The Baku-Tbilisi-Ceyhan Pipeline: Oil Window to the West, p 107

The consortium of 11 sponsors, led by BP, signed an agreement with SOCAR on 17 October 2000.

Following some changes in the constituency of the Sponsor Group (BTC Co), distribution of shares is as Table 5:

Table 5 BTC Sponsor companies

The Sponsor Companies	Share
BP EXPLORATION (CASPIAN SEA) LTD.	30.10%
SOCAR	25.00%
UNOCAL BTC PIPELINE LTD.	8.90%
STATOIL BTC CASPIAN AS	8.71%
TPAO	6.53%
ENI	5.00%
TOTALFINAELF	5.00%
ITOCHU OIL EXPLORATION (AZERBAIJAN) INC.	3.40%
INPEX	2.50%
CONOCOPHILLIPS	2.50%
DELTA-HESS (BTC) LTD.	2.36%

Source: http://www.btc.com.tr/eng/mep.html (Accessed on 24/04/2006)

The first quantities of Azeri crude oil pumped through the BTC oil pipeline began at the Saganchal oil terminal in Azerbaijan on 10 May 2005. The first export of oil from the Ceyhan Haydar Aliyev Sea Terminal in Turkey was loaded onto the British tanker Hawthame on 2 June 2006. The presidents of Turkey, Georgia and Azerbaijan are to come together on 13 July 2006 in Ceyhan for the official opening ceremony of the pipeline.[107]

Moreover, another important development is signing of a MOU for the participation of Kazakhstan to the BTC Project on 1 March 2001 in Kazakhstan between Turkey, Kazakhstan, Georgia and Azerbaijan. USA representative also signed the MOU as a

[107] Caspian Oil Reaches Turkey's Mediterranean Port Ceyhan. (2006, 29 May). ISRO, the Journal of Turkish Weekly

witness.[108] In 8 June 2006 Kazakh officials said the country could ship up to 25-30 million tons of oil yearly through the U.S. backed pipeline. The $4 billion pipeline bypasses Russia, carrying Caspian oil to Western markets via Georgia and Turkey. Recent development is signing Host Government Agreement between Azerbaijan and Kazakhstan to extend the pipeline to Kazakhstan on 16 June 2006. This connection facilitates the flow of Kazakh oil to the Mediterranean through the Aktau-Baku connection.[109]

Map 2 Crude Oil Pipelines

Source: http://www.eia.doe.gov/cabs/Caspian/images/Caspian_pipe_map.pdf (Accessed on 03/07/2006)

Besides all indirect revenue to be generated in relation to the BTC Crude Oil Pipeline Project, Turkey will collect $140-200 million in the first 16 years of the Project and

[108] Martin, Lenore (Ed.) & Keridis, Dimitris (Ed.). (2004). The Future of Turkish Foreign Policy. p 229
[109] Guy Dinmore and Isabel Gorst, "Kazakhstan Signs Pipeline Accord," Financial Times, 17th June 2006.

$200-300 million in the 17th to 40th year period depending on the amount of transported oil, as transit fees and operations services payments.

The BTC Crude Oil Pipeline is one of the most imperative energy projects that Turkey has ever performed with respect to the associated political, economical, strategic and environmental aspects. On economical basis, Turkey will be able to purchase crude oil at a lower price. The main reason for this will be the minimisation of transportation costs. Another reason will be the dwindling of financial costs. Oil from the Persian Gulf reaches our refineries in 15 days but oil from the BTC pipeline is expected to reach the refineries in only 2 days.

When the maximum capacity of 50 Mt/y is reached Turkey plans to purchase 15-20 Mt/y thereof. Considering that the crude oil exports of Turkey is expected to reach 48 Mt/y in 2010 and up to 74 Mt/y in 2020, Turkey high dependency on exports oil which thus amplifies the value of the BTC Project regarding supply security and price stability in the country. Turkey is also benefiting from an increase in economic activity in eastern Anatolia, the least developed area of the country. The port of Ceyhan, which has experienced significant reductions in activity since the 1991 Gulf War, is entering a time of resurgence.

BTC makes closer Azeri and Turks who are ethnically Turkic people and triggers the other corporation as Industry, Cultural, social etc. between Turkey and Azerbaijan. Especially if Turkmenistan natural gas and Kazakhstan crude oil are transported via same pipelines, it might be of future Turkic Union between those countries. Therefore, BTC is a kind of catalyst which accelerates the approach of West and East Turkic countries.

Therefore, the BTC Pipeline Project is envisioned as the milestone of an "East and West Transportation Corridor" linking the South Caucasus and Central Asia to Turkey and the Mediterranean Sea. This project has also brought forward the advantage of avoiding the risks associated with the passage through the congested Turkish Straits. As Turkish

President A. N. Sezer said the completion of BTC puts Turkey in the "centre of the new global energy map."[110]

4.2.2. OIL PIPELINE PROJECTS

4.2.2.1. Bosphorus bypass crude oil pipeline

Even though 1936 Convention of Montreux stipulates that Turkey has to concede free passage through the Turkish Straits to any ships, except war times. However, Turkey's power to regulate commercial shipping through the Straits and the Turkish government made it clear that Turkey wasn't ready to allow the foreseeable increase in traffic of large oil tankers. Since last 70 years the number and size of vessels has growth dramatically but the regulations stay always the same.[111]

Especially Russia and Turkey seek some alternative pipelines which prevent such a natural disaster and disrupt oil transfer. These alternative pipelines divert from the Bosphorus oil reaching the Black Sea at Novorossiysk. Even though there are 3 main proposals in Turkey Samsun Ceyhan, Kiyikoy-Ibrikbaba and Agva-Izmit. Samsun-Ceyhan is supported by both Turkish and Russian sides. Indeed, after its construction was approved by Turkish government the other two alternative proposals became obsolete. Russia also supports Burgas - Alexandroupoli pipeline as primary Bosphorus bypass oil pipeline as a rival of Samsun-Ceyhan and BTC.[112]

• Samsun-Ceyhan crude oil pipeline

A Turkish company, Calik Enerji, is currently proposing a line from the Black Sea port of Ceyhan to the existing Mediterranean terminal at Ceyhan. Two alternatives are under study.[113] Italian ENI which has an oil field in Kazakhstan, is also one of the partners of Blue Stream, seeks corporation with Calik Enerji.[114] Both would carry 50 Mt/y to Ceyhan and provide an extra 5 mt to the refinery at Kirikkale near Ankara. It will be from Samsun to Ceyhan would run 560 km and would require three pumping stations.

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[110] Hurriyet. (2006, 14 July).President Sezer: New pipeline puts Turkey in center of global energy map. ISRO, the Journal of Turkish Weekly

[111] Kramer, Heinz. (2000). A Changing Turkey: The Challenge to Europe and the United States. p107-109

[112] Sarıibrahimoğlu, Lale. (1997). Kurt Kapanında Kısır Siyaset. p 55-56

[113] Pamir, A. Necdet. (2006). Energy Security and The Most Recent Lesson:The Russia-Ukraine Crisis. p 22

[114] İtalyanların yeni gündemi enerji. (2005, 24 November), AKSAM

Costs are put at $1.5billion.[115] The decree was agreed on 26 April 2006 by the Turkish parliament, and was later that day ratified by Turkish President Ahmet Necdet Sezer.

Map 3 Bosphorus Bypass pipelines

Source: http://www.eia.doe.gov/cabs/Caspian/bosporus%20bypass%20map.pdf (Accessed on 06/04/2006)

The line would provide an alternative route for transporting Russian oil to European, Mediterranean and Asian markets, while further reducing traffic on the already heavily congested Bosphorus and Dardanelles straits. This project will reduce 50% of tanker traffic.

The project's main strength is that it discharges into a deepwater port at an existing oil terminal; its weakness is that a bypass line within Turkey could be construed as putting too many eggs in a single basket. The new pipeline will follow the same route. Samsun

[115] Samsun-Ceyhan Pipeline (SCP) Scheduled for 2009. (2006, 24 June). ISRO, the Journal of Turkish Weekly

is the nearest Turkish port to Russia's major Black Sea port of Novorossiysk, while Ceyhan has the entire necessary infrastructure for oil refining, and is deep enough to accommodate the largest tankers.

If this project materializes, Ceyhan will turn into an oil stock exchange, it will be a centre where Iraqi, Azeri, Russian and Kazakh oil meet. Referring to their efforts to form a Ceyhan Index for the oil market, Calik assured reporters that Ceyhan will be a successful supply centre on the world oil market.[116] Therefore Turkish government also realised its importance and support it.

Since GAZPROM is interested in the transport of Russian gas to Lebanon and Israel via Turkey, it supports building a gas pipeline from the Black Sea port of Samsun to Ceyhan on the Mediterranean coast.

In August 2006, Turkish company Calik Enerji and Indian IOC applied to build new refinery (8-10 million tonne) in Ceyhan. Calik Enerji is constructing a pipeline between Samsun and Ceyhan with Italian ENI. The new refinery is planned to supply both foreign and indigenous markets.

Russian LUKOIL also seeks building new refinery (8-10 million tonne) challenge in Zonguldak if it is boosted by government adequately.[117] LUKOIL is also planning an oil terminal at the site, with capacity of 1 million tonnes, to receive and store oil products.[118] Turkey currently has a refinery deficit of nearly 20 percent and imported approximately six million tons of oil last year to meet the country's demand for oil. On the other hand, Turkish government proposed to LUKOIL building refinery in Ceyhan instead of Zonguldak. Turkish side encourages LUKOIL either join Calik Enerji–IOC partnership or build a separate refinery in Ceyhan.[119] Consequently, it creates big revenue to Turkey and Turkey becomes petroleum products exporter. Since the LUKOIL exports the Russian oil, it guarantees to use Samsun Ceyhan crude oil pipeline.

4.3. NATURAL GAS

[116] Samsun-Ceyhan Pipeline (SCP) Scheduled for 2009. (2006, 24 June). ISRO, the Journal of Turkish Weekly

[117] LUKOIL delegation visits Samsun for preliminary research. (2006, 29 August). Turkish Daily News

[118] Turkey to rule on LUKOIL refinery by end of 2006, (2006, 10 July), Reuters

[119] LUKOIL delegation visits Samsun for preliminary research. (2006, 29 August). Turkish Daily News

Europe's increasing demand for imported natural gas will confirm the need for strong political and physical links to North Africa and Russia, and increase the attraction of suitable pipeline links to the Middle East and Central Asia. Enlargement and bigger markets are likely to confirm market trends for gas, while increasing the EU's dependence on Russia's vast reserves.

Natural Gas was introduced for extensive usage in western countries 210 years ago. In Turkey, the Natural Gas discovered in the Kumrular Region in 1970 and the Camurlu Region in 1975 was introduced for use in Pınarhisar Cement Plant in 1976 and Mardin Cement Plant in 1982 respectively. However, limited reserves restricted the development of consumption initially.[120]

Natural gas was introduced as a cleaner alternative to coal and lignite is rapidly becoming an important dimension of energy consumption, even though its indigenous production is and will remain very limited. In fact, natural gas is the fastest growing primary energy source in the country.

Table 6 Turkey's Natural Gas Purchase Agreements

AGREEMENTS	VOLUME BCM/Y (plateau period)	DATE OF SIGNATURE	DURATION (YEARS)	DATE OF OPERATION
Russian Fed. (Westward)	6	14 Feb.1986	25	1987
Algeria (LNG)	4	14 Apr 1988	20	1994
Nigeria (LNG)	1.2	09 Nov.1995	22	1999
Iran	10	08 Aug 1996	25	2001
Russian Fed. (Blue Stream)	16	15 Dec 1997	25	2003
Russian Fed. (Westward)	8	18 Feb 1998	23	1998
Turkmenistan	16	21 May 1999	30	(?)
Azerbaijan	6.6	12 Mar.2001	15	2007

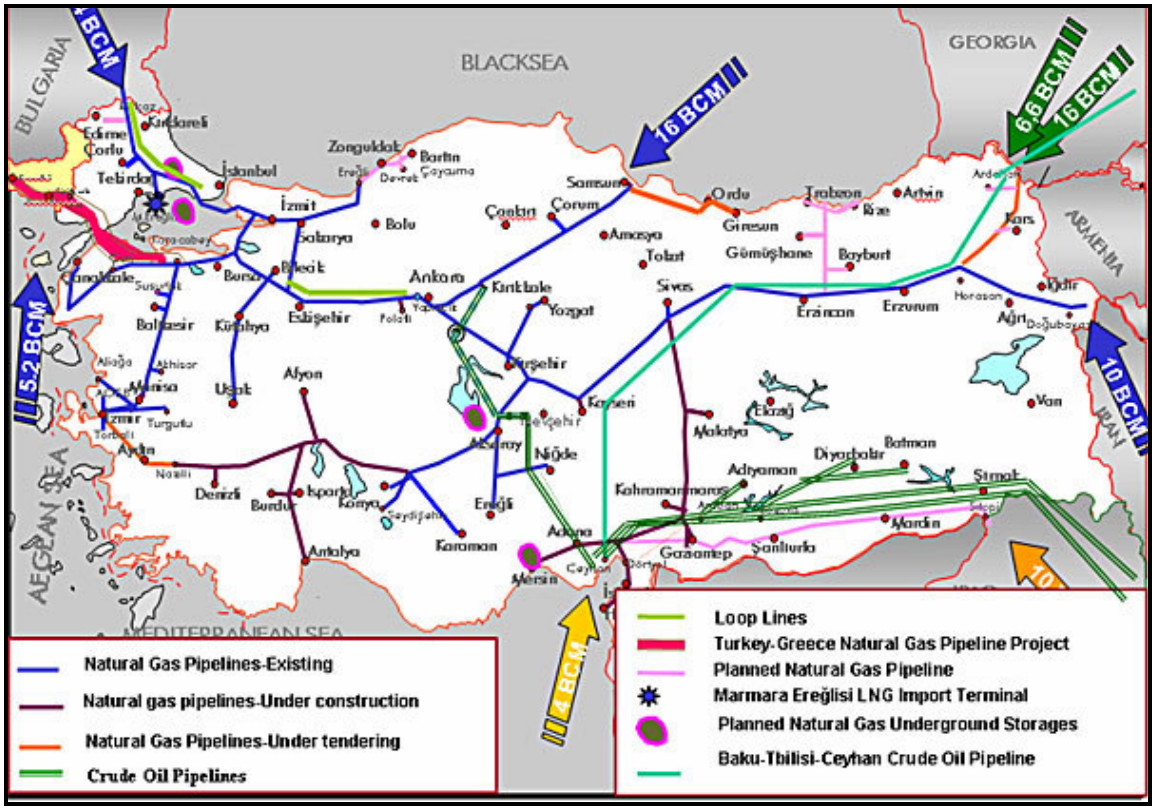
Source: http://www.botas.gov.tr/eng/naturalgas/ng_buy_ant.asp (Accessed on 12/02/2006)

The adverse effects on environment brought about by Urbanization and Industrialization also influenced Turkey after the 1980s which caused the energy sector to search for

[120] Natural Gas in Turkey. IGDAS

alternative energy sources. Turkey launched natural gas import studies in September 1984, and, upon completion of 850 km Soviet Union-Turkey Natural Gas pipeline in April 1988, utilization of natural gas in Turkey started.

Map 4 BOTAS Natural Gas Pipeline System

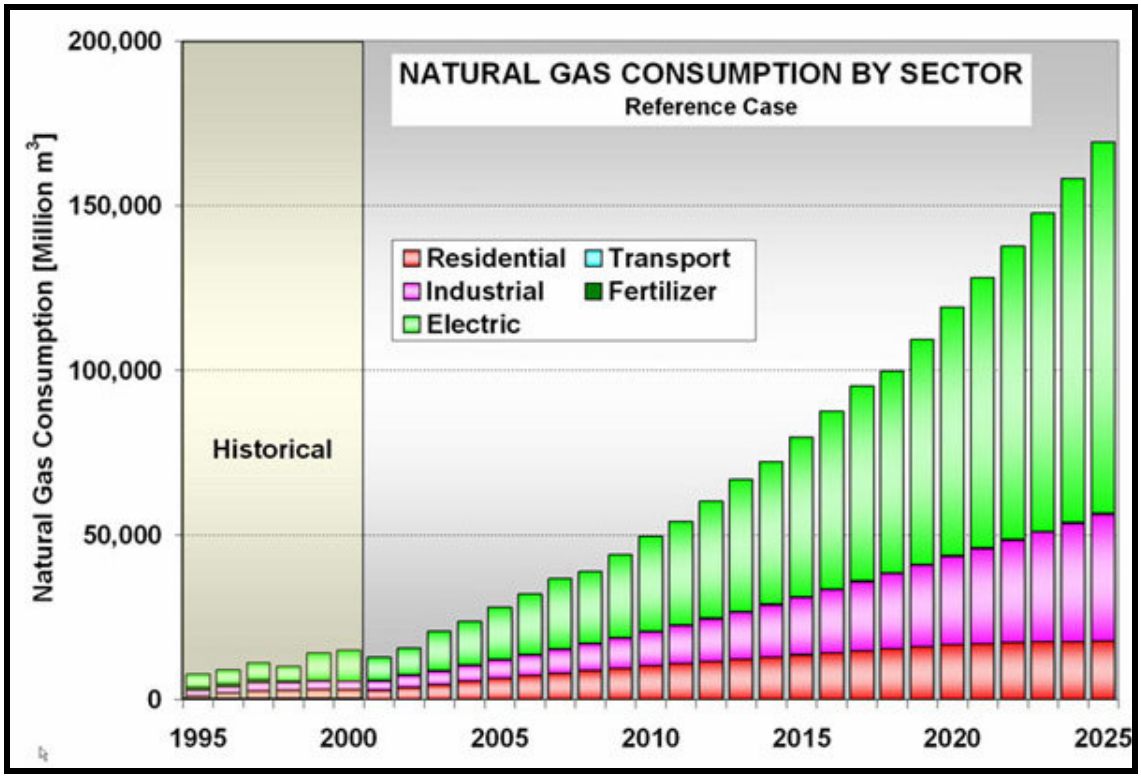


Source: http://www.botas.gov.tr/eng/maps/map1.asp (Accessed on 13/01/2006)

The indigenous gas production of Turkey can provide only 2% of Turkey's requirement. Turkey began using natural gas in 1986. In order to secure gas supplies, BOTAS signed eight natural gas purchase agreement (take or pay) with six different countries for 67.8 bcm/y of natural gas or LNG imports. As it is in **Table 6,** it is combination of 4bcm/y of LNG from Algeria, 1.2 bcm/y of LNG from Nigeria, 14 bcm/y of natural gas from Russia via the West, 16 bcm/y of natural gas from Russia through the black Sea, 10

bcm/y of natural gas from Iran, 16 bcm/y of natural gas from Turkmenistan and 6.6 bcm/y of natural gas from Azerbaijan.[121]

Figure 3 Turkey Projected Natural Gas Consumption by Sector (1995-2025)



Source: http://www.dis.anl.gov/ceeesa/programs/turkey.html (Accessed on 24/06/2006)

Even though network tariffs are based mainly on distance and volume, storage tariffs are freely negotiated between storage companies and users. Russia supplies 65 % of Turkey's gas needs. Beginning of 2006 Turkey suffered gas shortages due to severe weather conditions in both Russia and Iran, its other top supplier, and also at home which has led to increased demand.

In natural gas transportation Turkey will be new artery of Europe. The connections are being considered between Iraq and Turkey and Turkey and Balkans, representing potential natural gas reserve of Middle East and Central Asia to Europe. After completion of SCP a new supply route from turkey to Austria and further Western

[121] Hoekman, Bernard (Ed.) & Togan, Sübidey (Ed.). (2005). Turkey: Economic Reform and Accession to the European Union. p 211-212

Table 7 Incoming Natural Gas Pipeline Project until 2015[122]

Country	Volume	Transit Country	Potential by 2015	Existing System
Iran	10bcm	Turkey	20-30bcm	3-10bcm
Turkmenistan	13bcm	Iran/Turkey	30bcm	13bcm
Turkmenistan	34-80bcm	Russia	80bcm	50bcm
Turkmenistan	10-36bcm	Russia/Ukraine	36bcm	36bcm
Azerbaijan	7bcm	Turkey	20bcm	6-20bcm*
Iraq	10bcm	Turkey	10bcm	None
Egypt	4bcm	Jordan/Syria	10-12bcm	Link to Jordan**

Europe will be launched. It is part of EU TEN project that could bring 25-30 bcm/y natural gas from Middle East and Caspian Region via Turkey. Power sector gas demand is one of the main drivers for this projected growth and will account for 112.8 bcm or 67% of total gas consumption in 2025 (up from 9.3 bcm in 2000). Industrial demand is the fastest growing market segment (11.5% annually) with gas expanding from 2.5–38.4 bcm during 2000–2025 and eventually accounting for 23% of total gas consumption (See Figure 3)

Nevertheless, the World Bank and the State Planning Organization of Turkey consider that is inflated. 65% of gas the natural gas is consumed for power generation. Turkey's electric generation is accelerating dependent on imported natural gas, although Turkey has significant hydroelectric and lignite potential.

Table 8 Incoming Natural Gas Pipeline Project until 2025[123]

Country	Volume	Transit Country	Existing System
Qatar	20-30bcm	Kuwait/Iraq/Turkey	None
Egypt	10-12bcm	Jordan/Syria	Link to Syria
Saudi Arabia	10-20bcm	Jordan/Syria/Turkey	None
Kazakhstan	10-20bcm	Azerbaijan/Turkey	None
Turkmenistan	20-30bcm	Azerbaijan/Turkey	None
Turkmenistan	30-36bcm	Iran/Turkey	Limited connections
Uzbekistan	5-10bcm	Turkmenistan/Azeri/Turkey	None

Because of limited own natural gas production, Turkey mainly imports its demands. BOTAS¸ justified signing the long-term purchase contracts (See Table 6) by pointing to the expected rapid growth in the Turkish gas market; it predicted that gas demand would

[122] Roberts, John. (2004). The Turkish Gate Energy Transit and Security Issues. p6
[123] Ibid.

reach 55 bcm in 2010 and 83 bcm cubic meters in 2020. Total contracted amounts are expected to rise from 29 bcm/y (in 2004) to 67.6 bcm/y in 2010. Even though we can exclude some of the contracted amounts, notably from Turkmenistan (16 bcm/y), may not remain valid, a surplus is expected to exist and develop in 2010s. Even it is earlier, however, most observers believed the ambitious BOTAS¸ demand forecasts were overly optimistic, and they cautioned as well about the country's economic crisis. During 2003, as a result of a series of negotiations, the surplus has been kept to a minimum but it will not be possible to contain it in the same way in the coming years – although there are signs of further improvements along these lines with Russia. The take-or-pay component of contracts is quite high, reaching as much as 85% of the total for the 2010 figure. Depending on the grid constraint and its rank in power generation, natural gas supply is expected to exceed demand by an amount that could range from 7-8% of the total contracted amount in the next few years to much higher levels of up to a peak of above 17-18% later in the decade (10-25 bcm). The realisation of the improvements in contract terms, for which efforts are continuing, would naturally decrease these surplus amounts, but such reductions are unlikely to be very drastic although they could be important.

Table 9 Outgoing Natural Gas Pipeline Project

Route	Initial	Long Term Capacity	Comments
Turkey-Greece	0.75bcm	3-11bcm	Due to open 2006
Greece-Italy Interconnector	22bcm	22bcm	Under study Possible opening 2008
Turkey-Austria (NABUCCO)	3-5bcm	20-25bcm	Under study Possible opening 2009
Greece-Western Balkans-Austria	10-20bcm	Preliminary	proposal

Among the solutions regarding the surplus, the most significant one is completion of NABUCCO and Turkey-Greece-Italy Interconnector Project before 2010 (See Table 9). The second solution is large-scale gas storage which can be provided by realization of natural gas underground storage projects e.g. Tuzgolu, Kuzey Marmara, Degirmenkoy, and Tarsus. Another solution relating to decreasing the natural gas surplus that came on

the agenda is reported to be the interest that some international companies have shown in buying Turkey's contracts with Nigeria and Algeria.

One of the areas needing improvements in terms of environmental effects are the outputs of older thermal plants using coal. Some of them have been temporarily closed because of their inability to reduce harmful levels of pollution that result from power generation.

4.3.1. EXISTING NATURAL GAS PIPELINES

4.3.1.1. Blue Stream natural gas pipeline

The Blue stream is intended for deliveries of the Russian natural gas to Turkey going under the Black Sea, avoiding third countries' issues. The project aims an additional new way of gas delivery and diversifying gas sources from Russia to Turkey as alternative gas transportation from West Pipeline via the Ukraine, Moldova, Romania and Bulgaria being under operation for years. Deliveries of gas by the Blue stream pipeline essentially raise reliability of gas supplies to Turkey to develop gas market and gas infrastructure of Turkey.

The West Pipeline route made the gas substantially more expensive, and there were continual reports of gas being illicitly siphoned off while being transported through Ukraine and Moldova. From the point of Turkey building a new pipeline across the Black Sea floor solves this problem.

The pipeline consists of three main parts. The route comprises a 373 km section in Russia from the town of Izobilnoye to Dzhugba on the Black Sea Coast, a 396 km section on the bottom of the Black Sea connecting Dzhugba to the Durusu terminal located 60 km off the city of Samsun on the Turkish coast (submarine section) and a further 444 km link from Durusu (Samsun) to Ankara (Turkish onshore section).[124]

On 15th December 1997, Russia and Turkey signed an intergovernmental agreement for the sale of 364.5 bcm of Russian natural gas to Turkey between 2000 and 2025. In order to implement the agreement, the Blue Stream Pipeline Company - an equal partnership between Italian ENI and GAZPROM - was formed to operate a pipeline between the two

[124] Gazel, Fırat. (2003). Mavi Akım: Avrasya'da Çözümsüzlüğün Öyküsü. p 39

countries via the Black Sea. On 16th June 2000, after ratification of the Protocol by the parliaments of Russia and Turkey, it came into force.[125]

In October 2002, construction on the pipeline was completed and natural gas supplies through the Blue Stream began in February 2003. Blue Stream is a major trans-Black Sea gas pipeline operated by the GAZPROM that carries natural gas from Russia into Turkey. According to Natural Gas Purchase Sale Agreement the flow of natural gas will gradually reach 16 bcm/y in 2010. (In 2003, about 2 bcm/y, in 2004, 4 bcm/y, in 2005, 6 bcm/y, in 2006, 8 bcm/y, in 2007, 10 bcm/y, in 2008, 12 bcm/y, in 2009, 14 bcm/y and in 2010, 16 bcm/y)[126]

Total length of the pipe is 1,213 km. The total cost of the Blue Stream pipeline came to $3.4 billion, including $1.7 billion spent on building its underwater segment.[127]

Meanwhile, some Russian economic analysts objected that building a pipeline to Ankara meant tying Russia to a monopolist consumer, and Turkey which is historically rival country was not a reliable partner. Actually, for Russian the most important political goals of the Blue Stream project was to block the path of rival countries aiming to use the territory of Turkey to bring gas from the Middle East and Caspian area to Europe.[128]

According to Russia the pipeline has not been a financial success for Russia, since Turkey is only customer, it can dictate, to a large extent, the terms of purchase from GAZPROM. On the other hand Turkish counterpart is also complaining high price and "Take or Pay" which brings Turkish side more obligation even they don't buy it. The Turkey's foreign trade deficit increased and Turkey's export to Russia reduced while import from Russia was increasing. [129]

Building the Blue Stream pipeline was intended to be the foundation for a "strategic partnership" between Russia and Turkey, with joint participation in oil, energy, and transport projects. On the other hand it is also called as "historical strategic error" which

[125] Hoekman, Bernard (Ed.) & Togan, Sübidey (Ed.). (2005). Turkey: Economic Reform and Accession to the European Union. p 210
[126] Gazel, Fırat. (2003). Mavi Akım: Avrasya'da Çözümsüzlüğün Öyküsü. p 39
[127] Gow, David . (2006, 11 May). Cheney has Turkey in his sights. The Guardian
[128] Martin, Lenore (Ed.) & Keridis, Dimitris (Ed.). (2004). The Future of Turkish Foreign Policy. p 235
[129] Gazel, Fırat. (2003). Mavi Akım: Avrasya'da Çözümsüzlüğün Öyküsü. p 157

chocked the natural gas diversity of Turkish Energy Sector, Turkey's dependency on Russian natural gas increased to 65 %, and Turks couldn't realize Turkmen Pipeline and finally all the agreements were postponed. After the South Caucasus Pipeline and NABUCCO project Turkey will be attractive transit country for Turkmen Gas again.[130]

Russia also supports Turkey-Greece interconnector pipeline in order to provide gas supplies to West Europe and bypass Ukraine. It demands also raise the capacity of the pipeline.[131]

4.3.1.2. Russia-Turkey West natural gas pipeline

The result of finding alternative energy sources studies and demand of diversifying energy generation, an Intergovernmental Agreement was signed for the supply of natural gas between the Governments of Turkey and Former Soviet Union on 18th September 1984.

In 1985, BOTAS prepared a "Natural Gas Utilisation Study" in order to determine Turkey's natural gas demand potential and the possible route for the pipeline. On 14th February 1986 Natural Gas Sale and Purchase Agreement, which based on BOTAS's study, was signed between BOTAS and SOYUZGAZEXPORT for 25 years period. According to this Agreement, supply of natural gas to Turkey started in 1987 and the volume transported has been slowly increased to reach 6 bcm/y in 1993. In 1998, BOTAS signed another agreement with Russia to import 8 cm/y of natural gas from the West through TURUSGAZ. It is a BOTAS, GAZPROM, and GAMA joint venture.[132]

The 842 km long Russia-Turkey Natural Gas Main Transmission Line enters Turkey at Malkoclar at the Bulgarian border and then follows Hamitabat, Ambarli, Istanbul, Izmit, Bursa, Eskisehir route to reach Ankara. The pipeline reached Ankara in August 1988.

The use of natural gas by the industrial sector started in August 1989 and natural gas has been consumed by various industrial plants along the route for different sectors since

[130] Gazel, Fırat. (2003). Mavi Akım: Avrasya'da Çözümsüzlüğün Öyküsü. p 158

[131] Kerin Hope, "Russia to Discuss Gazprom Role in New Greek-Turkish Gas Pipeline," Financial Times, February 6, 2006.

[132] Hoekman, Bernard (Ed.) & Togan, Sübidey (Ed.). (2005). Turkey: Economic Reform and Accession to the European Union. p 210

then following Ankara, residential and commercial use of natural gas started in Istanbul, Bursa, Eskisehir, and Adapazari.

4.3.1.3. Iran-Turkey natural gas pipeline

In late January 2002, Iran and Turkey officially inaugurated a much-delayed natural gas pipeline link between Tebriz and Ankara. In 1996, Iran and Turkey had signed a $30 billion, 25 years agreement that called for Iran to supply Turkey with 10 bcm/y of natural gas end of 1999. Officials in Turkey and Iran variously blamed U.S. sanctions, financing problems on the Turkish leg of the $1.9 billion pipeline, economic recession in Turkey, and delays by the Iranians in completing an important metering station for delaying the project.

Actually according to first contract, Iran was to export to Turkey a total of 192 bcm of Iranian gas over 22 years, with deliveries starting in January 2000. However, when deliveries were scheduled to start, BOTAS¸ had not completed the necessary import infrastructure, and an amendment to the original deal was negotiated under which first gas was delayed to July 2001, and the duration of the contract was extended to 25 years. The total contractual volume was also increased to 228 bcm, with scheduled to reach their plateau level of 10 bcm/y per year in 2007. But again, when the July 2001 date arrived, BOTAS¸ claimed that Iran had not constructed the necessary border metering facilities, and gas did not actually start flowing until January 2002.[133]

There are questions, however, whether Turkish demand will grow rapidly enough to absorb this volume of natural gas from Iran, in addition to gas slated to be supplied by Russia, Algeria, and Nigeria. In June 2002, for example, Turkey halted natural gas imports from Iran, citing problems with "gas quality," although a lack of demand on the Turkish side appeared much more likely. Iran accused Turkey of using the quality issue as a pretext, and said that the real reason for the halt was that Turkey was not in a position to consume the gas.

After reportedly securing a lower price and a reduction in the "take-or-pay" percentage (down from the original 87 % of annual contract quantity to 70 %, which means that

[133] Hoekman, Bernard (Ed.) & Togan, Sübidey (Ed.). (2005). Turkey: Economic Reform and Accession to the European Union. p 210

BOTAS¸ will need to take only 7 bcm/y at the plateau), Turkey announced that it had resumed gas imports from Iran on 13 November 2002.

In August 2004, Turkish officials stated that they would seek international arbitration in the natural gas price dispute with Iran. One of the Turkish official said "Arbitration is a very difficult and expensive process, but there is no other option left for Turkey, and the arbitration process takes six months before a result". The International Court of Commerce would look at the case. If the problem continued, Ankara could cancel its gas contract with Iran.[134]

NABUCCO's early concept several years ago had envisaged Iran as the main upstream source for the pipeline. Tensions in Iran-West relations forced a rethinking and uncertain quest for other supplier countries.[135] Turkey also wants to purchase Turkmen gas and transit it to Europe but it can't get the permission to transit the gas through Iran.

Traditionally, the rivalry between Persia/Iran and Ottoman/Turkey concerned domination over the Central Asian transit routes for trade. Since the disintegration of the Soviet Union, Iran and Turkey have entered into competition yet again over their influence in CEA, although in a much more moderate way. There is even co-operation between the two countries, for example within the Economic Co-operation Organisation.

The emergence of a nuclear Iran would have a great effect on not only Turkish but also European security interests. With a nuclear power on its border Turkey would want to develop a national missile capability of its own. This could also have an effect on strategic perceptions in the Balkans, Aegean and the Caucasus.[136]

The Israel occupation in Lebanon in the summer of 2006, the Iran's support of Hezbollah and especially Iran's nuclear ambition can cause a sanction or even a war with Iran. It will be directly affect Turkey since Iran one of the important energy import partner. Naturally, all these developments endanger the future of Iran-Turkey natural gas pipeline.

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[134] Coskun, Orhan. (2005, March 4). Turkey prepares for arbitration on Iran gas price. Turkish Daily News

[135] Socor, Vladimir. (2006, 30 June). Pipeline Project can Diversify Europe's Gas Supplies. Eurasia Daily Monitor

[136] Amineh, M.P. (2003). Globalisation, Geopolitics and Energy Security in the central Eurasia and the Caspian Basin. p 5-6

4.3.2. NATURAL GAS PIPELINE PROJECTS - INCOMING PIPELINES TO TURKEY

4.3.2.1. Trans Caspian Turkmenistan-Turkey-Europe Natural Gas Pipeline Project

As a consequence of studies on transportation of Turkmen and Kazakh gas to Turkey and Europe, a frame Agreement that was signed by the Presidents of Turkmenistan Niyazov and Turkey Demirel in Ankara on 29 October 1998[137] is a milestone for the implementation of Turkmenistan-Turkey-Europe Natural Gas Pipeline Project aiming at the transportation of gas produced in Turkmenistan to Turkey and later on Europe.

Under the agreement "The Implementation of Trans Caspian Turkmenistan-Turkey-Europe Natural Gas Transmission Line Project for 30 bcm/y and Natural Gas Trade from Turkmenistan to Turkey Agreement" the parties agreed on the signature of 16 bcm/y Natural Gas Sale and Purchase Agreement for 30 years. On 13 February 1999 Turkmen authorities have declared that a consortium that would be formed by General Electric Capital and Bechtel will undertake the Projects. Later Royal Dutch Shell has joined the consortium on 6 August 1999.[138] The natural gas will be purchased at Turkey-Georgia border and Turkmenistan takes whole responsibility for the construction and operation of the pipeline section between Turkmenistan and Georgia. On the other hand Turkey will be responsible for the construction and operation of the pipeline section within Turkish territories.

The cost of the pipeline is put at $2.5-3.0 billion. Turkmenistan holds gas reserves that could warrant such a project, but the reserves still need to be certified. Shell has studied and rejected an overland variant of this project through northern Iran.

After the Agreement between Russia and Turkey about blue Stream, the Trans Caspian natural gas pipeline was postponed. In 1999, when Turkish Energy Minister Ersumer visited Ashgabat, Turkmen President Sapamurad Niyazov publicly upbraided him for supporting the Blue stream project.[139]

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[137] The 75th anniversary of the Republic of Turkey

[138] Hoekman, Bernard (Ed.) & Togan, Sübidey (Ed.). (2005). Turkey: Economic Reform and Accession to the European Union. p 210-211

[139] Martin, Lenore (Ed.) & Keridis, Dimitris (Ed.). (2004). The Future of Turkish Foreign Policy. p 224

It is difficult financing two big projects like Blue Stream and Turkmen Gas simultaneously. Despite claims to the contrary, in testimony to the U.S. Senate in 1999, Ed Smith, the president of Pipeline Solutions Group, openly said: *"Both the Blue Stream and TCP will bring gas to Turkey, but only one will be developed at a time because of the size of the market in Turkey. Turkey's demand for natural gas is very great and would seem to be big enough to support the development of both projects. But it is not. The enormous cost and risks involved in developing projects of this size require a high level of confidence that the market will be there when the gas arrive. We are therefore convinced that, once one of the two projects is widely seen as heading for successful financing, the other project will stall, probably to be delayed by as much as 5-10 years."*[140]

Especially, after the realization of BTC oil pipeline, USA and EU push Kazakh government to join Trans Caspian Gas Pipeline. As a result of EU Energy Commissioner Andris Piebalgs's visit, Kazakh Energy Minister B. Izmukhambetov said that pipeline from Kazakhstan to Azerbaijan, Georgia, Turkey, and further to Europe is seen as one of the feasible routes. In 2015 Kazakhstan will produce 45 bcm/y and 10-15bcm could be transferred to Europe via Trans Caspian Gas Pipeline.[141] (See Table 8)

Since the mid-1990's GAZPROM has choked almost all Turkmen gas transit through its system and Turkmenistan was only allowed to export to Ukraine. According to the reconciliation between Turkmenistan and GAZPROM in late 1999, Turkmenistan is able to export also other countries.

Turkmenistan extracted 63 bcm/y of gas in 2005. Existing pipeline capacity allowed the export of 45 billion cubic meters, including some 40 billion to and via Russia. Niyazov has set an extraction target of 80 billion cubic meters in 2006. This and higher targets seem entirely realistic, contingent on relatively modest investments. The question is whether Turkmen gas supplies will increase Russia's strategic leverage as monopolistic transporters and re-exporter of Turkmen gas, or will on the contrary enable Europe to resist such leverage by opening direct access to the Turkmen gas. Turkmenistan asked

[140] Congressional Daily Digest. (1999, 3 March).106th Congress. p. D203-D212
[141] BBC News. EU pushes for Kazakh gas pipeline. (2006, 5 May)

for a price increase on its gas, from $65 to $80 or $85 to Russia. Currently, Russia re-export the Turkmen gas to Europe more than $230 per 1,000 cubic meters. Similarly Turkmenistan exports natural gas to Ukraine only $50. [142]

Niyazov has signalled an intention to rejoin negotiations on the trans-Caspian pipelines at an interview with Turkmen Television Channel on 19th March 2006. He expressed his willingness as "We can provide you with cheap gas. I had already made such an offer to you in the past, but your leadership was slow to act and failed to get the Turkmen gas in time. At present, you are purchasing expensive gas and it does not even match your demand".[143]

As a result Trans Caspian Gas Pipeline aims transport Turkmen and Kazakh gases to Europe via integration of South Caucasus Pipeline and NABUCCO.

4.3.2.2. South Caucasus Natural Gas Pipeline (SCP) Project

It is Baku-Tbilisi-Erzurum natural gas pipeline, which is parallel to BTC oil pipeline, officially called the South Caucasus Pipeline. It is aimed at transporting the natural gas produced in Azerbaijan via Georgia to Turkey.

Negotiations started in October 2000 for the supply of natural gas from Shah Sea in Azerbaijan and they were finalized in March 2001. Intergovernmental Agreement was signed by Ministry of Energy and Natural Resources of Turkey and Deputy Prime Minister of Azerbaijan on 12 March 2001. Natural Gas Sales and Purchase Contract were signed by BOTAS and SOCAR on the same date. The expected completion date is in September 2006 at a cost of $953m.

Under the contract the delivery point would be Turkish/Georgian border. BOTAS 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.

[142] Kimmage, Daniel. (2006, 2 February). Analysis: Turkmen Government Steps Up Gas Diplomacy. Radio Free Europe / Radio Liberty

[143] Socor, Vladimir. (2006, 30 March). Azerbaijan Spearheading Initiative on Trans-Caspian Gas Pipeline. Eurasia Daily Monitor

As a result of the studies; in order to transport Azerbaijan and Turkmenistan natural gas within Turkey, an approximately 225 km. pipeline starting from Georgian border and reaching to Erzurum-Horasan is to be constructed and integrated to the Eastern Anatolia Natural Gas Main Transmission Line. The tender for construction works of the project was launched as 3 separate phases; the Tender for Construction Works of Azerbaijan-Turkey Natural Gas Pipeline (1st Phase) was launched on 5 January 2005, the Tender for Construction Works of Azerbaijan-Turkey Natural Gas Pipeline (2nd Phase) was launched on 6 January 2005 and the Tender for Construction Works of Azerbaijan-Turkey Natural Gas Pipeline Commercial Measuring Station and Compressor Station (3rd Phase-III) was launched on 1st March 2005 The line is planned to be operational in 2006.

The Contract is valid for 15 years; the official timetable for delivery of Azeri gas to Turkey, which may well slip, envisages a starting rate of 2 bcm/y end of 2006, rising to 3 bcm/y the following year, to 5 bcm/y in 2008, and then reaching its initial plateau level of 6.6 bcm/y in 2009.

The SCP will initially have a capacity of 6.6 bcm/y for short term, but documentation produced by BP in March 2004 showed, it can be extended up to capacity level of 20 bcm/y that is the general long-term target for Azeri gas exports.

Although the initial 2001 sale and purchase agreement were apparently based on projected Turkish indigenous usage of this gas, it is obvious that much or all of it will go straight to Greece (as a result of Turkey-Greece-Italy Interconnector and NABUCCO project). Norway's Statoil, which is responsible for securing export contracts for Azeri gas via the South Caucasus Pipeline, is actively assessing various European markets, starting with Greece.

4.3.2.3. Iraq-Turkey Natural Gas Pipeline Project

The goal of this project is for the transportation of 10 bcm/y natural gas with a pipeline from the gas fields to be developed in Iraq.

Turkey has the opportunity to establish itself as a consumer and transit country for Iraqi gas exports. Iraq has proven gas reserves of around 3000-7000 bcm and 70 % of which

is associate gas, largely around the Kirkuk field in the north. Due to the generally low cost of production in Iraq and the shorter transportation distance, Iraqi gas could emerge as an attractive source of gas supply for Turkey.

The related ministers of Iraq and Turkey have signed a Frame Agreement on 26 December 1996 in Ankara for the transportation of 10 bcm/y of Iraqi gas to Turkey by a pipeline. BOTAS-TPAO and TEKFEN are involved in this project as the Turkish Side.

As a result of the evaluation of the proposals of the interested companies for the Project; ENI-Agip was designated as the coordinator for the upstream activities while GdF was assigned as the coordinator for the midstream activities of the project.

Studies will be conducted on for preparation of Frame Agreement, Natural gas Sale and Purchase Agreement, Production Sharing Agreement and to negotiate for establishing Joint Operation Company and the Consortium to steer the Project.

Furthermore, if economically viable, priority may actually be given to the delivery of Iraqi natural gas to Europe via Turkey. This would not only help to enhance European energy security, but also provide the EU with an important economic co-operation prospect with Iraq. Such a scheme would provide Turkey with additional economic benefits through transit fees, as well as adding to Turkey's role in the European energy equation.

Bearing in mind the US eagerness to reconstruct the economy of Iraq, this project may now be resurrected with Washington's support. Iraq has extensive natural gas reserves that are largely untapped. Much of this would be associated gas, which would be produced as Iraqi oil fields are further developed. The building of an Iraqi natural gas to Turkey could also force USA policymakers to re-acknowledge Turkey's strategic importance with reference to pipeline routes.

Turkish energy minister Hilmi Guler expressed Ankara's desire to build a new natural gas pipeline parallel to the Kirkuk-Ceyhan pipelines during Ankara's meetings with Iraqi prime minister Ibrahim Jaafari on 28 February 2006. Turkey's energy companies

BOTAS and TPAO are in the process of searching for new sources of oil and gas in northern Iraq and are bidding to diversify Iraq's natural gas supplies.[144]

If this project is realised the next step would be transporting 20-30 bcm/y Qatar natural gas via the same gas pipeline. (See Table 8) Qatar contains 910 Tcf of proven natural gas reserves after Russia and Iran the third in the world.

4.3.2.4. Egypt-Turkey Natural Gas Pipeline Project

Egypt's excess of natural gas will more than meet its indigenous demand for many years to come. Egypt aim is to export natural gas to Western Europe and serve as a hub for its regional distribution among Middle East countries. It is interconnect energy lines in Egypt-Jordan-Israel-Lebanon-Syria and Turkey axis and modernization and integration of transport routes in the region.[145]

In November 1996, Egypt and Turkey have signed MOU for the export of LNG from Egypt to Turkey. According to MOU, Egyptian EGPC and Amoco will be responsible for constructing and operating liquefaction facilities and BOTAS is responsible for construction and re-gasification facilities in Izmir.[146]

A Protocol for cooperation regarding the oil and gas issues was signed in Ankara on 2nd February 2000. Accordingly, the parties have declared their intention for transportation of 4 bcm/y of gas from Egypt to Turkey by a pipeline crossing the Mediterranean Sea. Egyptian EMG is the authorised company to export natural gas to Turkey. BOTAS and EMG initialled Natural Gas Sale and Purchase Contract on 31 March 2001.[147]

Egypt and Jordan are cooperating to establish the Eastern Gas Company to export natural gas to Jordan. The export pipeline to Jordan began commercial operation in July 2003, making possible Egypt's first exports of natural gas. It is estimated that Egypt will be able to export to Jordan 1.1-3 bcm/y of gas per year. Total investment in this project is about $220 million.

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[144] Mesci, Evren & Aydilek, Olcay (2006, 1 March). Kuzey Irak'la paralel boru hattı için kulis. Sabah

[145] Bal İhsan & Laçiner, Sedat & Özcan, Mehmet. (2005). European Union with Turkey: the possible impact of Turkey's membership on the European Union. p 55

[146] IEA. (1997). North Africa oil and gas. p 74

[147] Hoekman, Bernard (Ed.) & Togan, Sübidey (Ed.). (2005). Turkey: Economic Reform and Accession to the European Union. p 212

Egypt was responsible for building the section from the existing pipeline terminus at El-Arish to Aqaba in Jordan. The pipeline's Gulf of Aqaba section is on the bottom of the Red Sea that bypasses Israeli waters. A contract was awarded in January 2004, and construction is scheduled to be completed by the end of 2005. Egypt, Jordan, and Syria agreed in principle in early 2001 to extend the pipeline into Syria, with eventual natural gas exports to Turkey, Lebanon, and possibly Cyprus.

A Frame Agreement was signed by Energy and Natural Resources Minister of Turkey Hilmi Guler and Oil Minister of Arab Republic of Egypt H.E. Sameh Fahmy on 17th March 2004, comprising natural gas import of BOTAS from Egypt Natural Gas Company EGAS and transit of Egypt natural gas from Turkey to Europe. According to the Agreement Egypt will export 2-4 bcm/y natural gas for Turkish and 2-6 bcm/y to European markets via Turkey.

Consequently, on 16 February 2006 Turkey signed a MOU in Istanbul with Egypt in order to begin buying Egyptian natural gas in 2008. Joint venture Tergas undertakes the construction of a nearly 240 km pipeline from Syria to the Turkish border, and then a pipeline of 93 km from the Turkish border to the Turkish national network. Turkey and Egypt would have 50 % share in Tergas, and later Romania and Syria could become a partner of the joint venture that would be founded.

The project will increase the diversity of natural gas sources for Turkey and Europe. The natural gas to be supplied to Europe may be transferred to the NABUCCO line and to Greece and Italy in the frame of the Southern Europe ring (See Map 5). With this project to transport Egyptian natural gas, Turkey will no longer be only as carrier, but will be in marketing as well with sales to Europe. [148]

4.3.3. NATURAL GAS PIPELINE PROJECTS - OUTGOING PIPELINES FROM TURKEY

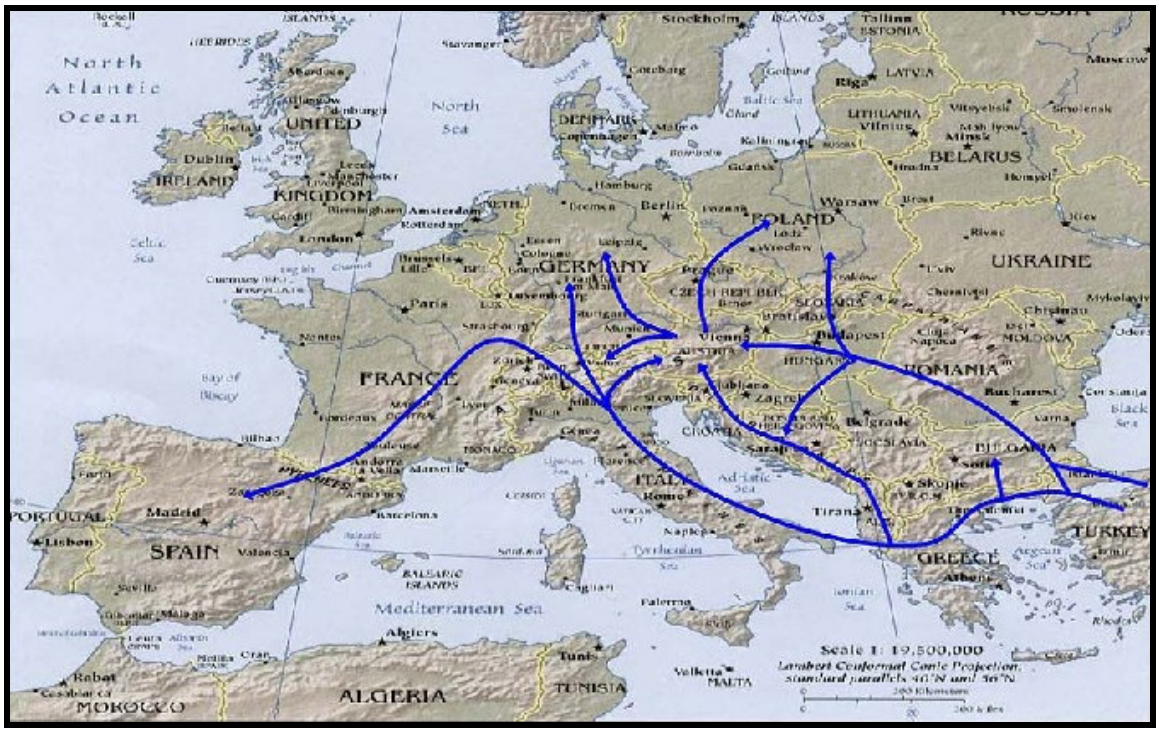
4.3.3.1. Turkey-Greece-Italy Interconnector Natural Gas Pipeline Project

Turkey-Greece Interconnector Natural Gas Pipeline Project is developed as a result of the studies undertaken for the interconnection of natural gas grid of Turkey and Greece

[148] Onal, Cumali. (2006, 20 March). Egypt-Turkey Gas Pipeline to Bring Peace to Region. Zaman

and creation of South European Gas Ring. It was considered that the South European Gas Ring could be furthered by a gas pipeline allowing the gas resources of the Caspian basin, Russia, the Middle East, Southern Mediterranean countries and other sources to flow to Southern Europe by transiting through Turkey and Greece. It will connect Turkey's and Greece's natural gas grids in western Anatolia and western Thrace, respectively.

Map 5 Outgoing Pipelines from Turkey



Source: http://www.botas.gov.tr/eng/maps/map2.asp (Accessed on 13/01/2006)

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 Greek DEPA.

Turkey has singed the Umbrella Agreement of INOGATE Programme on 30 March 2000. Following of this agreement, some meetings were organized between EU, Turkey and Greece in Brussels in July 2000. These meeting are concluded full agreement of all

the parties as the transportation of natural gas produced in the Caspian Region, Middle East and South Mediterranean countries to Greece via Turkey.

On 18 January 2001, Turkey's BOTAS signed Memorandum of Cooperation with its Greek counterpart, DEPA and accordingly technical working group started the studies for the interconnection if gas grids of both countries. As a result the studies were combined and submitted to the EU. BOTAS has declared its intention to supply Greece with gas, and submitted draft Natural Gas Sales and Purchase Contract to DEPA, asking their opinion.

Map 6 Turkey-Greece Interconnector

Source: http://www.iea.org/Textbase/work/2004/investment/ses2.9.pdf (Accessed on 13/06/2006)

On 28 Mart 2002 in Ankara, the President of BOTAS and DEPA of Greece have signed MOU regarding natural gas sale and purchase, natural gas transmission to Europe and Balkans via Turkey and Greece and LNG swap between the companies. Also on 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 Thessalonica by Energy and Natural Resources Minister of Turkey and Greek Development Minister on 23 February 2003. The project is taken to the first priority projects category of EU-TEN Program.

Map 7 Greece-Italy Interconnector

Source: http://www.iea.org/Textbase/work/2004/investment/ses2.9.pdf (Accessed on 13/06/2006)

In 8 April 2003 a protocol was sign between DEPA/BOTAS and the gas companies or authorities of Macedonia, Albania, Serbia-Montenegro, Bosnia-Herzegovina, Croatia, and Slovenia. It aims to transit gas to the West Balkan region and possibly, thereafter to E.U. The scope of the protocol provides for the initiation of a joint cooperation among the parties to study, evaluate and implement an alternate gas transport routing. (See Map 8)

After the feasibility and engineering studies of the project is completed. Natural Gas Sales and Purchase Agreement was signed on 23 December 2003 in Ankara, by the BOTAS and with its Greek counterpart, DEPA. Accordingly, the initial delivery volume by the line will be 0.75 bcm/y but will then climb to 3 bcm/y and it is envisaged to

increase to 11 bcm/y in 2012 of which 8 bcm/y for Italy market and the rest to Greece market. Depends on the commercial terms for a planned new 286 km long (from Karacabey to Komotimi), of which 209 km is within the Turkish territories, gas pipeline between the two countries. (See Map 6) First gas delivery will be realized at the end of 2006.[149]

Map 8 Western Balkan corridor

Source: http://www.iea.org/Textbase/work/2004/investment/ses2.9.pdf (Accessed on 13/06/2006)

EU backing feasibility study concerning a further interconnector, a 280 km line (with 224 km offshore) between the southern Italian port of Otranto and a Greek terminal at Stavrilimenas, was due to be ready in September 2004. (See Map 7) The very concept of an interconnector is strategic, in that the line, as envisaged, would be able to carry gas from Italy to Greece and Turkey or from Turkey to Greece and Italy. In other words, it would serve as a link between two main supply systems, increasing flexibility of supply.

[149] Pamir, A. Necdet. (2006). Energy Security and The Most Recent Lesson:The Russia-Ukraine Crisis. p 20

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 have signed a memorandum and BOTAS 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.

In April 2005 DEPA and Edison signed a provisional deal to build the extension under the Ionian Sea, which was backed up by the signing of a Greece-Italy intergovernmental agreement on 4th November 2005. In February 2006 GAZPROM has sought an interest in the Greek-Turkish pipeline, either as a shareholder or a supplier.[150]

In summary, an indicative sequence of such a development could be as follows:

1st Phase (Completion 2006): Turkey-Greece Interconnector, 286 km total length it is included in the CSF III program and is eligible for receiving Community Grants.

2nd Phase (Completion 2010): Increase of the capacity of Interconnector (by adding compressor unit) to accommodate increased gas supply to Greece as well as possible commencement of supply through Greece to Macedonia and Bulgaria.

3rd Phase (Completion 2010 – 2015): Implies the extension of the Greek transport system westwards with the construction of a 330 km onshore up to the West Coast of Greece and a 224 km offshore line up to Otranto, Italy. This could possibly serve the supply of Albania and Italy, starting in that period. The supply of Albania implies the construction of a 60 km gas line to the Greek – Albania borders.

4th Phase: Increase of the transport capacity of the 3rd Phase system to the extent necessary that will allow the transport of larger gas quantities to Europe via Italy.

It is to be noted that all these interconnection projects (Turkey to Greece, Greece to Italy, and Greece to Albania) have been included in the Trans European Networks Community Program and are characterized projects of Common Interest after a joint decision taken by the European Parliament and Council and this facilitates co-financing schemes from EU sources.

[150] Kessler, Glenn. (2006, 26 April). Rice Warns Against Russian Gas Monopoly. The Washington Post

Obviously, by seeking a regionally optimized solution, overall costs can be minimized with benefits for all in the access to ensure competitive gas supplies. In this perspective, Greece and Turkey have a vital role to play and consequently, the cooperation between DEPA and BOTAS in the gas sector is a meaningful driving force towards the realization of the arising prospects.

4.3.3.2. Turkey-Bulgaria-Romania-Hungary-Austria Natural Gas Pipeline Project (NABUCCO)

The Cooperation Agreement was signed among the associated companies of respective countries on 11 October 2002. Five companies, namely BOTAS (Turkey), Bulgargaz (Bulgaria), Transgaz (Romania), MOL (Hungary) and OMV Gas (Austria) have launched a study for a pipeline to transport natural gas from points on the eastern border of Turkey, through Bulgaria, Romania and Hungary to facilities at Baumgartenin Austria. EU TEN Funding Commission to meet partial cost of the feasibility study The project will ultimately transport up to 31 bcm/y of natural gas from sources to the east of Turkey especially Caspian Region and the Middle East through the transit countries of Bulgaria, Romania and Hungary and through Austria for onward transmission to the German border.[151]

After the market study and business model of the project was completed, Technical Feasibility Study of the project was initiated. The NABUCCO Consortium partners BOTAS, Bulgargaz EAD, S.N.TG.N Transgaz S.A, MOL, and OMV Gas GmbH have founded The NABUCCO Company Pipeline Study GmbH in June 2004 to conduct a financing study, to market the project, to negotiate with possible shippers and promote the project at EU-level.

Moreover; under the decision taken by the steering committee of the Project each country is obliged to undertake all the project studies within their country borders. Besides that as a result of the tendering for feasibility studies of the Turkish territories a contract was signed with the awarded company in July 2004 and studies are initiated.

[151] Pamir, A. Necdet. (2006). Energy Security and The Most Recent Lesson:The Russia-Ukraine Crisis. p 20

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 main artery[152]. 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 25-31 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 BOTAS, Hungary's MOL Transmission plc, Bulgaria's Bulgargas and Romania's Transgaz.[153]

NABUCCO pipeline is planned the 3,400 km line, €4.6 billion, it offers a serious prospect for delivering Middle Eastern and Caspian gas to major European markets. NABUCCO is expected to achieve a maximum transport of 8 bcm/y (base case) or 13 bcm/y (high case) in the first phase from 2011 onward, and reaching 25 (base case) or 31 bcm/y (high case) by 2020 and thereafter as it crosses Turkey.[154]

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 indigenous demand by means of NABUCCO. The EIB and European Bank for Reconstruction and Development are committed to lending and syndicating loans for 70% of the costs. The consortium's five companies shall cover the remaining 30% in equal shares.

In 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%. The new venture, he added, began on 5th May the technical process for choosing a financial adviser. By

[152] Devlet, Nadir. (2004). Turkey's Energy Policy in the Next Decade. p 82

[153] Pamir, A. Necdet. (2006). Energy Security and The Most Recent Lesson:The Russia-Ukraine Crisis. p 20, 24

[154] Socor, Vladimir. (2006, 30 June). Pipeline Project can Diversify Europe's Gas Supplies. Eurasia Daily Monitor

the end of the year it would receive the final drafts of both a full feasibility study and a financial assessment by the end of 2004 or around the start of 2005.

In May 2004, NABUCCO's directors initiated preliminary talks with Iran and some other interested parties in order to supplying gas for the system, but that formal negotiations with shippers would not start until the new joint venture had elaborated a general transportation contract. The joint venture and its backers were awaiting an interim study on possible usage of existing grids along the pipeline route, part of an overall feasibility study being conducted by the Boston Consulting Group. The current timeframe 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 would last from mid-2008 to end-2009. It is expected to begin operations in 2011.

The contractual conditions between suppliers and buyers will be vital for pipeline reliability. IEA and ECS highlighted that what they termed non-price differentiation may be a key element in developing competition with existing sources. They suggested structuring such as short or mid term contracts instead of long term contract and the introduction of price indexation systems that are not dependent on oil prices makers, makes the natural gas and natural gas pipelines more attractive to buyers. Thus non-price differentiation and a determinant in attracting and securing gas importers which are increasingly evolving in volatile and competitive gas markets.[155]

Finally on 26th June 2006, the Energy Ministers of Austria, Bulgaria, Hungary, Romania, and Turkey as well as the EU's Energy Commissioner Andris Piebalgs signed a Ministerial Statement of commitment to the NABUCCO gas pipeline project. Piebalgs emphasised NABUCCO as it is essential to Europe and the EU's most important gas supply project.[156]

The development of pipelines from Turkey to the EU overwhelmingly depends on a mixture of producer interests and availability of demand of European countries. Since the costs of such pipelines have to be spread between several potential purchasers, the

[155] Roberts, John. (2004). The Turkish Gate Energy Transit and Security Issues. p 8-9

[156] Lobjakas, Ahto. (2006, 7 June).EU: Brussels Targeting Central Asia's Energy. RadioFreeEurope RadioLiberty

development of gas importer consortiums becomes crucial. As the development of gas routes depends on the consumer market and requires significant investment and financial capacities, the involvement of major European gas companies and new operators in buying and distributing the gas is essential.

Even though NABUCCO initially intended to Iranian gas to Europe, tensions in Iran-West relations forced a rethinking for other supplier countries. Iraq as well as Egypt seems potential gas source. On the other hand Azerbaijan is a fully realistic prospect since Azeri Gas will arrive to Turkey with SCP end of 2006. But Azerbaijani volumes are relatively limited and could only support the NABUCCO pipeline's first phase. The EU itself seek immediately reactivate the trans-Caspian pipeline project for both Turkmen and Kazakh gas. Finally, after the completion and integration of Turkmen and Iranian natural gas to NABUCCO, its second phase is completed. Meanwhile Russia also declared its willingness to transfer Russian natural gas via Blue Stream and NABUCCO.[157] As a result of second phase of NABUCCO pipeline, the real diversification away from GAZPROM will substitute with Caspian and Mid East natural gas.

4.3.3.3. Extending Blue Stream Natural Gas Pipeline Project

In late August 2005, Putin and Erdogan discussed building a second line, or an expansion of the Blue Stream line. On 6 February 2006 Head of Russian gas monopoly GAZPROM Alexei Miller was in Turkey for negotiations regarding extension of the Blue Stream Natural Gas Pipeline to other countries of Mediterranean region.

It was agreed that Turkey and Russia will extend the pipeline to Israel and Lebanon. The announcement that the extension will take place was made by Turkey's Energy Minister Hilmi Guler on 3 February 2006, and following his meeting with Miller. Guler said that all the talks regarding this matter will be completed until mid of 2006.[158]

[157] O'Rourke, Breffni. (2006, 27 June). Caspian: EU Invests In New Pipeline. Radio Free Europe / Radio Liberty

[158] Turkey and Russia to Extend Gas Pipeline to Israel, Lebanon, Associated Press, 3 February 2006.

The sub-Black Sea gas pipeline will be extended from the Black Sea port city of Samsun to Turkey's Ceyhan oil terminal on the Mediterranean and then on to Israel and Lebanon.[159]

In the course of the talks GAZPROM's Miller also offered to extend the pipeline westward to Greece and then to Italy. It would be an alternative pipeline for Greece and Italy. They have endured during the natural gas crisis between Ukraine and Russia. According to Miller a joint company would be formed for that project. He also emphasized Russia considers Turkey as a reliable partner to transit gas to third countries. GAZPROM, meanwhile, is increasingly looking to diversify its gas supply routes, as its recent spat with Ukraine over new delivery prices and the record low temperatures which followed the dispute has shown that Ukraine remains a highly unreliable transit partner for the Russian gas monopoly.[160] Such a north-south pipeline, however, would likely be built only after completion of Samsun-Ceyhan oil pipeline along the same route.

4.3.4. THE LIQUEFIED NATURAL GAS (LNG) IMPORT TERMINAL

LNG has earned a creditable position as a commercially sound, technologically safe and reliable component of the international trade in natural gas. Through a process of cooling natural gas to a temperature of -160 degrees Celsius, it becomes a liquid, occupying approximately 1/600 of the volume of natural gas in gaseous state. As such it can be transported at normal atmospheric pressure by tankers to far away markets, where it is landed in a receiving terminal, regasified and distributed through pipelines.

An important characteristic of LNG is its inherently high costs, throughout the whole chain from the gas source to the customer markets. These costs are considerably higher than the cost of bringing oil to the market. Because of the cost of LNG and rigidity of gas market, the LNG contracts are usually 20-25 years long term. The elements of the LNG chain are liquefaction, shipping and regasification.

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[159] Kramer, Andrew E. (2005, 18 November). Russia Plans to Use Turkey as Hub for Gas. The New York Times

[160] Parfitt,Tom. (2006, January 2). Russia turns off supplies to Ukraine in payment row, and EU feels the chill. The Guardian

Most of the gas producers choose either LNG or pipeline to transport gas to export market. Gas pipeline is usually preferred when the source is landlocked or its seas freeze over and LNG is usually preferred for intercontinental trade. The cost of a gas pipeline project depends on scale and distance of export market whereas it is not important factor for LNG. Pipelines may have to cross many countries, but LNG trade normally only involves the supplying and receiving country.

In order to provide diversified natural gas supply sources and to increase security and flexibility of supply, BOTAS entered on 14 April 1988 into a LNG Sales and Purchase Agreement with SONATRACH for 20 years. According to this Agreement, Turkey would purchase 2 bcm/y natural gas equivalent of LNG from Algeria. Because of receiving the imported LNG, BOTAS initiated instigated the construction of the Marmara Ereglisi LNG Import Terminal in 1989, which is regarded as a base load plant and a means of peak shaving, when required. The Terminal was put into operation on 3 August 1994.[161]

An amendment to the Agreement with Algeria was signed to increase the import volume to 4 bcm/y in 1995. On the other hand an LNG Sales and Purchase Agreement were signed with NLNG of Nigeria and BOTAŞ on 9 November 1995 for the supply of 1.2 bcm/y natural gas equivalent of LNG. Thus LNG dependency was diversified between these two countries. Additionally, depends on requirement of LNG, Turkey has also begun to top up its long-term contracts with spot deliveries. The first spot LNG was from Australia within the scope of an agreement signed with North West Shelf LNG in 1995. Spot LNG was also purchased from Qatar and Algeria two different agreements signed with Qatar Gas and Sonatrach in 1998.[162]

The basic usage of the Marmara Ereglisi LNG Import Terminal are storage of the imported LNG and re-gasification of the LNG at required volumes to be sent out to the Russian Federation-Turkey Natural Gas Main Transmission Line (West).

[161] Hoekman, Bernard (Ed.) & Togan, Sübidey (Ed.). (2005). Turkey: Economic Reform and Accession to the European Union. p 212

[162] Ibid. p 212-213

It has been constructed with respect to earthquake risk. The 300 m long LNG Terminal's jetty has 16 m water depth, 110 m long breasting line and 380 m long outer dolphin opening. There are three 16" unloading arms that unload LNG from the tanker and an 12" loading arm that loads back the gasified LNG to the tanker, three LNG storage tanks with a capacity of 3 X 85,000 m^3 (in liquefied form) each and three open rack vaporisers (ORV) and four submerged vaporisers.

The LNG unloaded from the tankers by the unloading arms is sent to the storage tanks via 30" unloading lines. The natural gas coming from the vaporizers is odorised at the outlet of the metering station and sent to the Russian Federation-Turkey Natural Gas Main Transmission Line by a 23 km long.

In 1999 the maximum economic send-out capacity has been increased to 5.2 bcm/y. The system was taken over on 14 February 2001 and has become operational.

Moreover, the Egegaz LNG terminal, with 2 X 140,000 m^3 tanks storage capacity, at Izmir Aliaga has been completed since 2002 but not in operation until 2007 because no connection to the national pipeline grid. Its send-out capacity is 6 bcm/y. Beginning of 2007 the Egegaz was rented by BOTAS.[163] Another LNG Terminal is planned at Iskenderun on the Mediterranean.

Since most of the Marmara region's (include Istanbul) natural gas requirement is provided by Russian-Turkey gas pipeline, the Marmara Ereglisi LNG Import Terminal is crucial in case of natural gas supply continuation. In 2006 January during the Russia-Ukraine natural gas crisis, the LNG import from Nigeria has prevented big problem for Turkey Marmara Region.

4.3.5. THE NATURAL GAS UNDERGROUND STORAGE PROJECT

From the point of usage, natural gas has been a seasonal fuel. That is, demand for natural gas is volatile and usually higher during the winter, partly because it is used for heat in residential and commercial settings. Stored natural gas plays a crucial role in ensuring that any excess supply delivered during the summer months is available to meet the increased demand of the winter months. However, with the recent trend towards electric

[163] Investment necessary for security of supply, all eyes on distribution bids (2007, 6 January). Turkish Daily News

generation from natural gas, is increased the demand for natural gas during the summer months.

Natural gas in storage also serves as insurance against any unforeseen accidents, natural disasters, or other occurrences that may affect the production or delivery of natural gas.

The beginning of 2006 brought natural gas crisis between Russia and Ukraine affect many European countries as well as Turkey. Since Turkish 30% electric production base on natural gas related, for a short period electricity hasn't been supplied to big Factories. Similarly, the accident on Russia – Georgia natural gas pipeline causes fuel shortage in Georgia. Iran has bought some of gas, which is incoming to Turkey, to Georgia. Some of the factories have condemned the risk of electric shortage.

In order to regulate the seasonal, daily and hourly fluctuations in consumption, BOTAS has signed a Natural Gas Storage and Reproduction Services Agreement with TPAO. According to the agreement, starting from 2005, BOTAS will use TPAO's two depleted gas fields (Kuzey Marmara and Degirmenkoy) in the northern part of Marmara Sea as underground storage facilities: one in Tuz Golu and the other in Tarsus. The ownership and operation rights will be defined by the EMRA.

Table 10 POAS Underground Storage Project

Storage Project	**Type**	**Working capacity (bcm)**	**Peak output (mcm/d)**
Tuz Golu	salt caverns	1.0 – 5.0	40.0
Kuzey Marmara	depleted gas reservoirs	1.3	11.5
Degirmenkoy	depleted gas reservoirs	0.3	3.5
Tarsus	salt caverns	0.4	-

Within the framework of this project; the Salt Lake Natural Gas Underground Storage Project was developed to utilise salt domes in the Salt Lake Basin, which is 19 km away from Kayseri-Konya-Seydisehir Natural Gas Pipeline. The engineering studies of the project were initiated in July 2000. Environmental Impact Assessment Study of the Project was approved and submitted to BOTAS. Within the context of this project, it is

planned to store approximately 5 bcm of natural gas. The first part will be completed in 2010 with 1 bcm capacity and the 2nd part in 2013 and the last part in 2016. Turkey is approved the project in February 2006. German PLE, Turkish ENVY, and Russian PodzemGAZPROM consortium is initiated the construction works for the feasibility, design and engineering and the technical specifications for the tender documents. The feasibility report of the Project was approved by the State Planning Organization.

The compressor stations have been designed by BOTAS, and procurement and implementation will be managed by BOTAS. Since BOTAS has significant experience in constructing and operating compressors, and will be able to manage this process without external assistance. Moreover, the studies that were conducted by TPAO for Kuzey Marmara and Degirmenkoy gas fields for underground gas storage facilities following their depletion are continuing.

The "Natural Gas Storage and Reproduction Services Agreement" was signed on 21st July 1999 between BOTAS and TPAO. Total storage capacity of the facilities will be 1.6 bcm of natural gas of which 1.3 bcm in Kuzey Marmara and 0.3 bcm in Degirmenkoy. The projection for gas injection rate to Kuzey Marmara and Degirmenkoy fields during low season is 9.5 mcm/d where production is predicted as 11.5 mcm/day during high seasons.[164] TPAO awarded the tender for surface facilities in order to utilize Kuzey Marmara ve Degirmenkoy fields for natural gas underground storage and the construction phase was started. The facilities are planned to be operational by May 2006. Additionally, the Tarsus Natural Gas Underground Storage Project has been developed for the purpose of future utilisation of the sodium carbonate beds of Sisecam Soda San. as underground storage facilities. The pre-feasibility study of the Arabali field was completed and studies on this report are proceeding.[165]

4.3.6. TURKEY NATURAL GAS NETWORK INTERCONNECTION

After exporting natural gas, the residential users in Ankara firstly began receiving natural gas in 1988. In 1992 Istanbul and Bursa also began to receive supplies of natural

[164] TPAO History. TPAO

[165] Cornot-Gandolphe, Sylvie & Dickel, Ralf. (2002). Flexibility in Natural Gas Supply and Demand.p239-240

gas; Izmit and Eskisehir received supplies in 1996. The distribution of natural gas is undertaken by local distribution companies; EGO in Ankara, IGDAS in Istanbul, IZGAZ in Izmit, and BOTAS in Bursa and Eskisehir. The distributors are owned or co-owned by the municipalities they serve, except in Bursa and Eskisehir. The city distribution networks have been enlarged over the years, parallel with demand. In view of the growth scenario described earlier, BOTAS¸ has planned to connect local distribution networks in 55 new cities. The connection dates for all of these projects are in 2002–04.

In order to become "Transit Country" or "Gateway of Europe" and boost its internal demand, Turkey will have to improve its national transmission and distribution network. Five projects are already under study and slated to become operational in 2005. The Southern Natural gas transmission line project; the Konya-Izmir natural gas transmission line project; the eastern Black Sea gas transmission line project; the western Black Sea natural gas transmission line project; and the Georgian border–Erzurum (Horasan) natural gas transmission line project.[166]

4.4. COAL AND RENEWABLE ENERGY IN TURKEY

All renewable technologies ultimately derive energy from natural sources that vary in their availability over different timescales. Renewable Energy Sources is attractive to supply energy for environmental and geopolitical reasons. It is free or rather cheaper than petroleum energy depends on its raw fuel (sunlight, wind, waste etc.). Renewable energy has the potential to provide a safe, clean and affordable energy supply, without threat of external disruption or exhaustion of reserves.

Turkey's primary current energy consumption is 85.3 MTOE and it will be about 153.9 MTOE in 2010 with respect to its growing population, economy and energy demand. Turkey energy sources will be projected as coal 27%, oil 37.5%, natural gas 23.3%, hydro-energy and the others 12%. Despite its plenty of big rivers, only 12% of the hydro potential is utilized. Annual coal production (hard and lignite) is about 55 million tons. Turkey 61.2% of energy need is imported. This demand will be increased to 72% in 2010.

[166] Hoekman, Bernard (Ed.) & Togan, Sübidey (Ed.). (2005). Turkey: Economic Reform and Accession to the European Union. p 213

Table 11 Turkey Primary Energy Consumption

Energy source	1995	%	2004	%	2010	%
Coal	15.7	26.1	23.0	27.0	40.0	26
Oil	27.4	45.5	32.0	37.5	50.8	33
Natural Gas	6.0	10.0	19.9	23.3	49.2	32
Others	11.0	18.4	10.4	12.2	13.9	9
Nuclear						
TOTAL (MTOE)	60.1		85.3		153.9	

Source: BP, Statistical Review of World Energy June 2005 (with 2004 Data)

In January 2001, Turkey announced the approval for 17 wind and one geothermal BOT power plants. Currently, wind power capacity in Turkey is around 19 MW, with units located all over the country. Potential for wind power may be as high as 120,000 MW, with particularly attractive areas for wind located along Turkey's west coast and in Southeastern Anatolia.

4.4.1. COAL

The hard coal (anthracite and bituminous) reserves of Turkey is around 1.1 billion tons, 80% of which can be coked. Turkey's lignite reserves around 8 billion tons, the seventh largest in the world lignite.[167] Even though only a small part of the lignite reserves are suitable for use as an energy source, it is still a significant domestic energy source for Turkey. Especially, the prospect of improving their quality and the extent to new technologies with respect to environmental factors would increase its importance.

Lignite deposits are encountered in almost every region of Turkey. The biggest lignite deposits, 40% of the total, are in the Southeastern Turkey Afsin-Elbistan. This reserve is assumed to be sufficient for the existing and forthcoming units of the Elbistan thermal power plant. Hard coal is mined only in Eregli, Zonguldak and the Western Black Sea region.[168]

[167] Devlet, Nadir. (2004). Turkey's Energy Policy in the Next Decade. p 76
[168] IEA. (2005). Energy policies of IEA Countries: Turkey 2005 Review. p 89

Turkey's state-owned coal company, TTK, produces, processes, and distributes hard coal, while Turkish Coal Enterprises produces most of Turkey's lignite. Nearly 75% of the indigenous lignite is consumed in thermal power plants.

Turkey's annual lignite production is around 65 million tons. Turkey is in sixth place in production. The contribution of lignite mining to the economy is essentially in the field of the production of energy. Although lignite produced for electricity generation totalled 34 million tons in 2000, this amount fell to 16 million tonnes in 2003. In 2002, lignite 23% and hard coal provided 2.3% of Turkey's electricity generation. Including imports, it constitutes around 16% of primary energy consumption.

In addition, Turkey's Electricity Generating Authority produces lignite for three power plants. Between 1990 and 2000, the number of workers in Turkey's coal sector fell from 63,993 to 35,665. Only 60% of them workers are underground worker in 1990. Thus it increases also efficiency and productivity in coal sector. Turkish coal, which is used mainly for power generation, is generally of poor quality and highly polluting.[169]

Consequently, Turkey is self sufficient in coal for the next hundred years. The share of coal in electricity production in the US is 56%, whereas it is only 32.7% in Turkey. New technology makes it possible to produce clean energy using coal. The cost of electricity produced at coal-powered plants is 2.0-3.5 cents/kWh and it is for natural gas-powered plants 4.0-4.7 cent/kWh. The second price is depends on the natural gas price. In 2006 summer, some natural gas-powered plants were stopped and the west Turkey has blacked out.

4.4.2. HYDRO ELECTRIC

The Ataturk Dam was a major project designed to increase electricity output. Its first two power units came on line in 1992.

In 2002, 12,000 MW, or around 36% of the installed electrical-energy-generating capacity was hydraulic although the corresponding share in actual electricity generation was only 16%. Turkey's total potential hydraulic energy capacity is estimated to be

[169] Dartan, Muzaffer. (1996). Privatisation in the UK and Turkey with particular reference to the Coal Sector. p 227-228

125,000 GWh. Some argue that in the future, priority should be given to using the remaining 75% of this potential.

Table 12 **Turkey Electricity Generation and Capacity (2004)**

Energy Plant	Capacity Power (MW)	Capacity Generation (GWh)	Actual Generation (GWh)	Capacity Usage %
Coal	8,923	58 391	34 558	59
Oil	3 202	21 167	9 800	46
Natural Gas	12 640	94 867	59 098	62
Other thermal	27	207	76	37
Geothermal &Wind	34	156	160	103
Hydroelectric	12 654	45 435	47 614	105
TOTAL	37 480	220 223	151 306	69

Source: http://www.dsi.gov.tr/hizmet/enerji.htm (Accessed on 19/07/2006)

Beginning of 2004, Turkey had electric power generating capacity is 37,480 MW, and was building 13,000 MW more. With a young and growing population, low per capita electricity consumption, rapid urbanization and generally strong economic growth, Turkey for nearly two decades has been one of the fastest growing power markets in the world. Prior to Turkey's economic difficulties in 2001, projections by TEAS, a public company which owns and operates 15 thermal and 30 hydroelectric plants generating 91 percent of Turkey's electricity, had indicated that rapid growth in electricity consumption would continue over the next 15 years. Now, though, power demand growth looks much weaker, with demand hit hard by Turkey's 2001 economic crisis, and with a surplus of generating capacity for the time being. Still, the government anticipates the need for significant increases in power generating capacity in coming years, possibly 54,000 MW by 2020, requiring billions of dollars in foreign investment.

In July 2004, Turkey and Greece agreed on a 16-mile-long power line linking the two countries, which will help to further integrate Turkey's power grid with Europe's. Turkey has significant hydroelectric power resources, and is developing a great deal more, especially as part of the $32 billion Southeast Anatolia hydropower and irrigation

project. When completed, GAP, which is considered one of the most ambitious water development projects ever undertaken, will include 21 dams, 19 hydro plants (with around 7.5 GW of power generating capacity), and a network of tunnels and irrigation canals. Major Turkish hydro dams as part of the GAP include: Ataturk (2,400 MW capacity), Karakaya (1,800 MW); Ilisu (1,200 MW), Cizre (240 MW); Silvan/Kayser (240 MW), Hakkari (208 MW), Alpaslan II (200 MW), Batman (198 MW); Konaktepe (180 MW), and Karkamis (180 MW)[170]

4.4.3. NUCLEER ENERGY

Even though Turkey hasn't nuclear power, the Turkish Government has declared its intention to build several nuclear energy plants. This matter is now at the exploration phase. Since Turkey's future nuclear power programme is to be dependent on nuclear policy, TAEA has recently initiated a project to revise the nuclear policy of the country. This project includes applications in various sectors of nuclear energy, including nuclear power, and programmes associated with each sector.

The nuclear scenario assesses the impact on emissions attributable to introducing nuclear units into the Turkish power system starting in 2014, which the government now recognizes as the earliest date for nuclear power. The six nuclear units that are assumed to come on-line after 2015 essentially replace generation from gas-fired combined cycle gas turbine units with only very minor changes in the dispatch of the hard coal, lignite, and oil-fired generating units.

In July 2000, the Turkish government decided to abandon a planned, but oft-delayed, $4 billion, 1,300-MW nuclear power plant. Three international consortia (AECL of Canada, Westinghouse-Mitsubishi of the United States and Japan, and NPI of France and Germany) had submitted bids to build the plant, which would have been Turkey's first nuclear plant. The project was to have been a turnkey and would have been located at Akkuyu, on the southern Mediterranean coast.[171] The main reason for postponing Akkuyu NPP project was the financial burden arising from the external credit needed for the project.

[170] Devlet, Nadir. (2004). Turkey's Energy Policy in the Next Decade. p 77-78
[171] Macalister, Terry. (2006, 23 June). The energy debate hots up. The Guardian

In November 2004, Turkish Energy Minister Guler said that nuclear power plants with 4,500-5,000 MW of capacity would start operating in Turkey by 2014. Turkish government wants to apply BOT model. Sinop and Mersin are the major candidate cities.[172]

4.4.4. GEOTHERMAL ENERGY

The General Directorate of MTA has carried out geothermal energy exploration in Turkey. The inventory and chemical analyses of the hot springs and mineral waters started in 1962. The Turkey potential geothermal energy regional distribution: Aegean region 66.7%, Central Anatolian region 15.2% , Marmara region 12.8%, Eastern Anatolian region 2.5%, Black Sea region 1.9%, Mediterranean region 0.7% and Southeastern Anatolia region 0.2%.[173] The existence of more than 600 hot springs indicates that Turkey has an important geothermal energy potential. Even though Turkey is 7th in the world in terms of its geothermal resources, a very small fraction of this potential has so far been utilized. Turkey's geothermal resources are estimated to be as high as one-eighth of the world's total

Taking into consideration the current development of geothermal energy in Turkey, it is estimated that in the year 2000, about 2,520 MWth will be installed in district heating together with a generating capacity of 125 MWe. By the year 2010, these figures should be increased to 6,500 MWth and 258 MWe, and in 2020 8,300 MWth and 1,000 MWe respectively. Thus, Turkey is likely to be the leading country in the world at the beginning of the 21st century, regarding geothermal district heating schemes

The cost of geothermal energy is one seventh of the cost of natural gas, one sixth of oil and one fifth of coal. Geothermal energy potential of Turkey is estimated at around 35 GW, which is equal to 33 bcm of natural gas. Currently, 52,000 residences are heated using geothermal energy. It could be raised up to 5 million residences if all potential geothermal energy were utilized.

4.4.6. SOLAR ENERGY

[172] Nükleer santral Sinop'a. (2006, 12 April). Milliyet

[173] Grepmeier, Klaus. (2005, April). Geothermal energy utilisation in Turkey. Geothermische Energie 46, 12. Jahrgang/Heft 2/4

Even though there is considerable potential for the use of solar energy, only some part of which is exploited at present. Turkey is located in a relatively advantageous geographical position. Its annual average total insulation duration is as 2640 hours and average annual solar radiation as 1311 kWh/m²-year.[174]

Main solar energy utilization in Turkey is the flat plate collectors in the indigenous hot water systems. Turkey is one of the leading countries in the world with a total installed capacity of 8.2 million m² collector area as of 2001 and total energy production equals to 287,000 TOE. The potential of Turkey solar energy is estimated as 35 MTOE.[175]

Solar energy is mainly used for roof-top hot water. The systems are mostly used in Aegean and Mediterranean regions. The industry is well developed with high quality manufacturing and export capacity. Around 100 companies is around 100. Annual manufacturing with 750,000 m² annual capacity.

Utilization of photovoltaic systems is limited with the usage of some governmental organizations in remote service areas such as telecom stations, forest fire observation towers and highway emergency. Total installed peak power is estimated as 300 kWp.

4.4.7. WIND ENERGY

Turkey has one of the biggest land surface areas of about 780,580 km^2 and 7200 km coastline in Europe. It is surrounded by the Black Sea in the north, the Marmara and the Aegean Sea on the west and the Mediterranean Sea in the south Thus, Both Turkey's wide land area and its appropriate wind energy region make Turkey one of the highest technical wind energy potential countries in Europe.[176]

Today, wind energy projects across Europe produce enough electricity to meet the domestic needs of eight million people. The installed capacity in Europe has increased by about 40% per year in the past six years. We can say the same trend is available also in Turkey although the installed wind energy capacity is very small. The installed insignificant capacity of Turkey's wind energy has increased from 9 MW in 1998 to 19

[174] Karaosmanoğlu, Filiz. (2004). Enerjinin Önemi, Sınıflandırılması ile Kaynak ihtiyaç dengesi ve gelecekteki enerji kaynakları. p 29-32

[175] Adaman, Fikret (Ed.) & Murat Arsel (Ed.). (2005). Environmentalism in Turkey: Between Democracy and Development? p 163

[176] IEA. (2005). Energy policies of IEA Countries: Turkey 2005 Review. p 21

MW in 2003. The most attractive regions for wind energy applications are the Marmara, the Southeastern Anatolian and the Aegean regions. These regions are highly suitable for wind power generation, since the wind speed exceeds 3 m/s in most of these areas.[177]

Indeed, the wind energy potential is high in Turkey though commercial wind energy is new. Turkey's first wind farm was commissioned in February 1998, having a capacity of 1.5 MW. The capacity is likely to grow rapidly, as plans have been submitted for an additional 2000 MW. The economically meaningful potential of wind energy capacity is estimated at around 8,000 MW.[178] Only a very small fraction of it is used at present although there are wind projects on the agenda.

Finally, even though Turkey has significant wind energy potential, there isn't enough encouragement and investment for wind energy sector. Turkey should set up new wind tribunes with respect to its wind map.

[177] Adaman, Fikret (Ed.) & Murat Arsel (Ed.). (2005). Environmentalism in Turkey: Between Democracy and Development? p 163

[178] Ibid.

V CAN TURKEY BE ENERGY GATEWAY

Throughout the 20th century, Caspian oil has played a key strategic role in the world politics, frequently the source of contention between external sea powers. The 19th century Great Game had been based on competition for wider power and influence by asserting control over the Central Asia region. But end of 19th century, with technology increasingly capable of exploiting the reserves, oil emerged as a pivotal factor in the competition the Game intensified.[179]

After the resolving of Soviet Union and 9/11 WTC Attack, the world energy policies focused on the Central Asia and Caucasus regions and tried to find out the most efficient, secure, and economic energy routes.[180] Turkey wants to benefit the advantage of its geographic location and to be a transit country between energy regions and Europe. Initially, some producers, especially Russia, have comparatively little interest in utilising Turkey as a transit country. The main reason of this unwillingness is Turkey geo-strategic location in the region, (as the Cold War Era) the possibility of traditional foe ignite the ash of Turk Union tendency with the other ex-Soviet Turkic countries (Azerbaijan, Turkmenistan, Kazakhstan, Uzbekistan, Kyrgyzstan), and crossing of their economic interest on Caspian Sea region. Turkish president Ozal declared as "21st century will be Turkish century" but after his death it demoralized the energy policies.[181] During the 1990s because of Turkey couldn't perform its big brother role and some other cooperation in defence field, Russia and Turkey have approximated their relations.[182] The natural gas crisis between Russia – Ukraine at beginning of 2006, even forced to Russia to seek another alternative pipelines such as Blue Stream. Currently, 80% of Russian natural gas export to Europe is pumped via Ukraine.[183]

[179] Sampson, Anthony, (1976), Günümüzde Petrol Oyunu (Seven Sisters). p 24-38
[180] Pamir, Necdet. (2004). Orta Asya ve Kafkasya'da Güvenlik Arayışları Sürecinde Bölgedeki Enerji Kaynaklarının Rolü. p 507
[181] Gül, Atakan & Gül-Yazgan, Ayfer. (1995). Avrasya Boru Hatlari ve Türkiye.p 38
[182] Torbakov, Igor. (2002, December 27). Turkey-Russia: Competition & Cooperation. EURASIANET
[183] Tran, Mark. (2006, January 3). Q&A: the gas crisis - update. The Guardian

Russia is one of the main Energy corridors of the Europe, the question can be Turkey also another energy corridor of Europe with respect to the regional disputes, international treaties, oil companies, US Energy policies and its energy investments.

5.1. INTERNATIONAL TREATIES AND DISPUTES

5.1.1. BOSPHORUS REGULATION

When we look at the map, we can easily see how the Bosphorus difficult waterway for the sea transportation. Bosphorus is approximately 31 km long, with a maximum width of 3,700 metres at the northern entrance, and a minimum width of 700 metres between Kandilli and Asiyan; and 750 metres between Anadoluhisari and Rumelihisari.[184]

The Montreux Convention Article 2 states that in time of peace, merchant vessels shall enjoy complete freedom of passage and navigation in the Straits, by day and by night, under any flag with any kind of cargo. In the Article, any kind of cargo could contain explosive or toxic cargo in gas or liquid phase, particularly nightly passage of the tankers cause big risk for Istanbul.[185]

The environmental risk involved in the oil transportation process is very expensive and require a regional corporation. The Caspian Sea oils significantly increased the oil cargo traffic through the Turkish Straits. Each year over 50,000 vessels, and 5,000 of this oil or LNG through the straits endanger the security of oil transportation and the Straits.[186] Especially because of the strong stream, reverse streams and local sea traffic make the narrow Bosporus one of the most hazardous sea way. Therefore the feasibility of transportation not only international transportation but also local sea ferries impossible.

On 15 November 1979 the Romanian tanker Independenta and Greek Evriyali collided and 94,600 tons oil spread into Bosphorus and caused a natural disaster. Similarly, South Greek Cypriot Nassia (33,000 tons) collided in 13 March 1994.[187] Nowadays, some of the crude oil vessels have over 200,000 tons. More dramatically, if two of them collide

[184] Adams, Terry D.& Emerson, Michael & Mee, Laurence D. & Vahl, Marius. (2002). Europe's Black Sea Dimension, p 52

[185] Oran, Baskın (Ed.). (2001). Türk Dış Politikası Volume 2, p 186

[186] Adams, Terry D.& Emerson, Michael & Mee, Laurence D. & Vahl, Marius. (2002). Europe's Black Sea Dimension, p 52

[187] Dobra-Manço, Yasemin. (1998, 15 December).SMITHSONIAN calls Bosphorus a disaster waiting to happen. Turkish Daily News

and explode it cause several atom bomb effects over 12 million residents of Istanbul who live in Asian and European side.

Turkey support to Bosphorus Bypass oil pipeline, therefore especially it highlights the significance of Samsun - Ceyhan oil pipeline. Because of the hazard of Bosphorus, Turkey restricted the passage of oil tankers through Turk Straits. The determination of Turkey has weakened the Georgia position as main export route. Turkey doesn't earn revenue from the sea traffic from ships according to 1936 Montreux Convention.[188]

In May 1994, the Turkish government, citing safety and environmental concerns, passed measures which would regulate the passage sea traffic through the Bosphorus Straits. The regulations contained numerous provisions

According to new regulations, which stipulate vessels longer than 150 meters are advised to take pilot captains and guiding tugs. The use of automatic pilots for navigation is prohibited. Ships powered by nuclear energy or carrying nuclear or other dangerous cargo are required to report to the Turkish Environment Ministry for permission to cross the Straits. The height of the ships will be limited. New traffic lanes are set, and two large vessels carrying dangerous cargo will not be allowed to go through at the same time.[189]

Shortly after announcing the 1994 regulations, Turkey approached the International Maritime Organization; an international entity linked to the United Nations, in an attempt to gain approval for the new measures and the regulations was approved by the IMO General Assembly in November 1995.

Especially Russia protested the new regulations. Ukraine, Bulgaria, Romania, Greece and Oman supported Russian aspects. Russian shipping companies heavily criticized the measures as capricious and unfair. Even though Russia has a right to cancel Montreux Convention, it hasn't because of its advantages about war ship for littoral states.[190] The Russian government pointed out that the Turks had not previously shown any interest in

[188] Peimani, Hooman. (2001). The Caspian Pipeline Dilemma: Political Games and Economic Losses. p 53-54

[189] Kohen, Sami. (1994, 9 June).Turkey Stems Bosphorus Shipping. The Christian Science Monitor. p 6

[190] Oran, Baskın (Ed.). (2001). Türk Dış Politikası Volume 2,p 590

protecting the environment, and seemed little concerned with safety, as they have not installed a radar system along the straits.[191]

In 1996 the disputes discussed IMO Security Committee meeting. The Oil Companies International Marine Forum requested some revisions about restriction of big oil tankers. On 6 November 1998 Turkey adopted a new and revised set of Regulations for the Turkish Straits. The new Regulations are essentially the sane as the 1994 Regulations. However, taking into consideration the experience of the past four years Turkey revised the 1994 Regulations. On the other hand COLREG 10 and Traffic Separation Scheme remain unchanged.[192]

Moreover, the Turkish Government has installed a modern vessel traffic services system in the Turkish Straits. The System has been operational since 30 December 2003.

5.1.2. CASPIAN SEA REGULATION

The Caspian Sea is the world's largest inland body of water with 371 000 km^2 area. After the collapse of the Soviet Union the question of how to share Caspian shores between Russia, Iran and newly independent three states (Kazakhstan, Azerbaijan and Turkmenistan).

According to treaties signed between Russia and Iran in 1921 and 1940, the states have sovereign rights over the water up to 12 miles from their coasts of the Caspian Sea. After the collapse of the USSR, the CIS member states guaranteed in the Alma-Ata Declaration in 1991 to recognise the former USSR's international engagements, including the 1921 and 1940 treaties.[193]

The rules of public international law that are applicable to the Caspian's legal status depend primarily on the legal character of this body of water. If the Caspian Sea is a "sea" in legal terms, the United Nations Convention on the Law of the Sea of 1982 would be applicable.[194]

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[191] Pomfret, John. (1995, 28 April). In Central Asia, a Rush For Control of Black Gold. International Herald Tribune

[192] Oran, Baskın (Ed.). (2001). Türk Dış Politikası Volume 2,p 591, 596-598

[193] Büyükakıncı, Erhan. (2000). Patterns of Integration in Central Asia. p 9

[194] Akiner, Shirin (Ed.). (2004). The Caspian Politics, energy and security. p 20

Each littoral state would have a "territorial sea" with a breadth not exceeding 12 miles, an exclusive economic zone not exceeding 200 miles and a continental shelf. In Article 15 of UNCLOS[195] mandates that the territorial sea of states with opposite or adjacent coasts must not extend "beyond the median line every point of which is equidistant from the nearest points on the baselines from which the breadth of the territorial seas of each of the [two] States is measured". If, considering the channel connections between the Caspian and Black Sea and Caspian and Baltic Sea, the Caspian Sea were recognized as a sea, the three newly independent states, as land-locked states, could claim the right of access to the high seas under Articles 69 and 124–132 of UNCLOS.[196]

On the other hand if it is a "lake" in legal terms, then customary international law concerning border lakes would apply. The most popular principles for delimitation of international lakes are: coastal line and middle line. The coastal line principle was mostly applied in a period of colonization of tropical countries and later often replaced by middle line. Therefore, in international practice the principle of geographical middle line and approximate (formal) middle line were most frequently applied.[197]

According to international rules the status of Caspian Sea can be either Common property (condominium) or as an individual property. Especially, the argument rose when Azerbaijan started negotiation with global oil companies for ACG of shore fields. The Russia claimed that since Caspian is an inland lake, it should be subjected to international rules regarding lakes. According to these rules, all the five countries could claim an exclusive zone within the Caspian, and in order to apply the rules regarding sea should be agreed by the 5 littoral countries.[198] Iran and Turkmenistan supported Russian. According to Azeri aspect which is supported by Kazakhstan, Caspian Sea is called as a "Border Lake" or an "Open Sea". If it is Border Lake, first establishing a modified medial line and dividing the Caspian first north-south, then sub-dividing the two "halves".

[195] UNCLOS Article 15 - Delimitation of the territorial sea between States with opposite or adjacent coasts
[196] UNCLOS Article 69 &124-132 - Right of land-locked States and from the Sea and freedom of Transit
[197] Janusz, Barbara. (2005). The Caspian Sea Legal Status and Regime Problems, p-3
[198] Croissant, Michael P. & Aras, Bulent. (1999) Oil and Geopolitics in the Caspian Sea Region.pp23-25

Even though Turkmenistan initially supported Russian proposal, in February 1998 it agreed to the principle of dividing the Caspian into national sectors and it accordingly signed a document with Azerbaijan. Another border problem erupted between Azerbaijan and Iran. In April 1998 Iran declared it can accept individual property only if an equal dividing of Caspian. Thus Iran would get 20 % share instead of Azeri proposal 10 %. Later Russia agreed with Azerbaijan in April 1998 and with Turkmenistan in July 1998. However, Iran hasn't compromised with any other littoral countries, yet.[199]

5.1.3. REGIONAL DISPUTES AND THEIR EFFECTS ON ENERGY WAYS

Up to the mid 1990s the Caucasus was widely accepted as Russia's geopolitical backyard. But after the dissolution of the Soviet Union, several ethnic conflicts broke out.[200]

The first regional dispute is in Nagorno-Karabakh region between Armenian separatist and Azerbaijan. On 20 February 1988 the small autonomous enclave Nagorno-Karabakh formally requested that the region be transferred to neighbouring Armenia. It was rejected by Moscow, however as a result of the resolving of Soviet Union in 1991, and termination of Nagorno-Karabakh's autonomous status by Azerbaijan, the war broke out. Armenians took advantage with Russian helps and annihilated Azeri's from Karabakh. After over 23,000 dead, and over a million refugees, a ceasefire was signed in May 1994. The Karabakh Armenians have declared independence (Artsakh) and seized almost 20% of the country's territory, creating almost 1 million Azeri refugees in the process.[201] Because of Armenian-Azeri and Armenian-Turkey disputes, the pipeline route crossed Georgia instead of economic Armenian route.

After ceasefire of First Chechen War (1994-1996), de facto independence of Chechnya was declared. Since Grozny is very important crossroad for the Russian Caspian pipeline in October 1999 the fresh war was ignited again. Even though Russia has been able to

[199] Oran, Baskın (Ed.). (2001). Türk Dış Politikası Volume 2,p 433
[200] Akiner, Shirin (Ed.). (2004). The Caspian Politics, energy and security. p 323
[201] Oran, Baskın (Ed.). (2001). Türk Dış Politikası Volume 2,p 401

restore control over much of Chechnya, it is obvious that the problem goes on and peace was established likely only temporary.[202]

Georgia has conflict in Abkhazia and South Ossetia which has had de facto independence since the collapse of the Soviet Union and Ajaria that has already resolved. Russia supports Abkhazia and South Ossetia and some 80 per cent of South Ossetia's residents hold Russian passports.[203]

Another conflict in the region is PKK terrorism who responsible from 37,000 deaths. Iraqi Kurds seek independence in North Iraq and would spread their region into Kirkuk where the dominantly ethnic Turkmen live before the American occupation. If the Iraqi Kurds include the Kirkuk to their region and take over the pipeline management, they could threaten even Turkey's integration. Especially, such independence welcomes by Israel since it disturb the Arab hatred over Israel. USA thinks Kurds as reserve soldiers against possible Iran attack. After US-led invasion of Iraq in March 2003, the ethnic conflicts and sabotage attacks have mostly kept the Kirkuk-Ceyhan oil pipeline idle.[204] Iran-Turkey pipeline has suffered with PKK sabotages in August and September 2006.[205] In 1990s Russia has expressed support for PKK and even PKK militants have attended some of Duma meeting. The aim of Russia using PKK card due to having secured the early Azerbaijani oil flow through the northern route as opposed to the Turkish route, the unwillingness against new Bosphorus Regulations and dissatisfaction with Turkey's position on the Chechen crisis.[206]

The security of energy pipelines, supply and flow are significant for Turkey's energy policy in order to be energy corridor.

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[202] Aydın, Mustafa. (2000) New Geopolitics of Central Asia and the Caucasus: Causes of Instability and Predicament. p 14-15

[203] Penketh, Anne & Sengupta, Kim. (2004, 12 July). Georgia's president warns Russia after clashes. The Independent

[204] Reuters. (2006, 2 August). Northern oil pipeline to Turkey hit by sabotage. Turkish Daily News

[205] Explosion hits Iran-Turkey gas pipeline. (2006, 30 September). Turkish Daily News

[206] Sarıibrahimoğlu, Lale. (1997). Kurt Kapanında Kısır Siyaset. p 66

Stability in the region is vital for Western powers which have an economic stake in the new "great game" being played out with Russia in the Caucasus region over construction of pipelines from the Caspian oils and natural gas fields through Tbilisi to Turkey.[207]

5.2. WHAT DO THE OIL COMPANIES IN THE "NEW GREAT GAME" WANT

The seven oil companies jointed by Enrico Mattei, in order to be dominant for oil production, refinement and distribution, they were able to take advantage of the rapidly increasing demands for oil and turn massive profits. This oil companies are Standard Oil of New Jersey (Esso) (now ExxonMobil), Royal Dutch Shell Anglo-Dutch, British Anglo-Persian Oil Company (APOC) (now BP), Standard Oil of New York (Socony) (now ExxonMobil), Standard Oil of California (Socal) (now Chevron) Gulf Oil, Texaco (now Chevron). This well organized cartel is called as "Seven Sisters", able to negotiate with their way in most Third World oil producers.

As a response of oil companies Venezuelan oil minister Perez Alfonso enacted new oil law which is basis on fifty-fifty rule. He emphasized their power as "We have formed a very exclusive club. Between us we control ninety percent of crude exports to world markets, and we are now united. We are making history." In 1959, the new wave immediately appeared in Middle East in Arab Petroleum Congress in Cairo. Tariki and Alfonso constituted the first seed of the creation of OPEC. [208]

The power of OPEC in the 1970s was large, because the OECD countries were very dependent on oil imports from only a few exporting countries; the supply pattern was relatively rigid and there was no spot-market. The import dependency and the accompanying vulnerability were not so much a consequence of OPEC policy, but a result of the international oil market structure of that time. The shift in ownership of crude oil and the import dependency led to sharp political controversies in the 1970s have created a long-lasting distrust of OPEC's intentions. In additionally, the high oil prices stimulated the development of Non-OPEC oil production. After formation of OPEC, the Seven Sisters' influence declined. The surviving companies ExxonMobil,

[207] Penketh, Anne & Sengupta, Kim. (2004, 12 July). Georgia's president warns Russia after clashes. The Independent

[208] Sampson, Anthony, (1976), Günümüzde Petrol Oyunu (Seven Sisters), p 135-138

Chevron, Shell, and BP are created a new group "super majors" with Total and ConocoPhillips.

In the new era the oil companies have to convince the government, the state oil company officials, and public opinion that they are not trying to steal the oil, but an agreement has to be mutually beneficial in order to survive in the long term. Thus, oil companies do not make investment before they provide fully controlling of the activities, i.e. the country of production and exploration should guarantee that oil will flow through these pipelines.[209] Moreover, since oil giants take decisions according to economic parameters, they are interested in the technical details of the pipelines in terms of cost-benefit analysis, rather than political considerations.[210]

In 1990s the result of the talk of a new "Great Game" among the USA, Russia, Iran and other Caspian states, the international oil companies began investing in Caspian energy projects.[211] Because of the commercial concerns BTC project was not always the preferred option in companies' calculation. Kazak Tengiz oilfield operator Chevron (50% ownership) proposed a 1505 km pipeline to Russian Black sea port Novorossiysk (CPC). This first oil pipeline was fully operational in October 2001. In additionally, TotalFinaElf undertook a feasibility study including construction of pipeline from Kazakhstan via Turkmenistan to Iran.[212]

In 1998 French company Total did a feasibility study between Caspian Sea to Iranian's port on the Persian Gulf. The American companies Mobil and Conoco lobbied to US Government in order to ease Iranian sanction and allow the pipelines.[213] US Government each times discouraged since it may lessen the impact of the sanctions and help Iranian regime to continue to be a threat in the region.

During the Soviet Union time and later, the main oil transport stream across the Black Sea has been two main terminals at Novorossiysk and Tuapse by the Ukrainian port of

[209] Akiner, Shirin (Ed.). (2004). The Caspian Politics, energy and security. p 128-129
[210] Udum, Şebnem. (2001). The Politics of Caspian Region Energy Resources: A Challange for Turkish Foreign Policy. P 6
[211] Hill, Fiona. (2004). Pipelines in the Caspian Catalyst or Cure-all? p 20-21
[212] Akiner, Shirin (Ed.). (2004). The Caspian Politics, energy and security. p 68
[213] Hill, Fiona. (2004). Pipelines in the Caspian Catalyst or Cure-all? p 21

Odessa and two new terminals Supsa and Batumi. They were fully operational for early Azeri oil in 1999. Most of the oil tanker cargo transits Turkish Straits.[214]

Initially AIOC had hesitation and reluctance and even resistance for BTC project. The main reason was low price of oil[215] in international market and transit fee and construction of new pipeline make not feasible the Caspian oil. Another reason PKK has been waging a violent terrorism that threatens the pipeline in East Turkey. However, the alternative Novorossiysk pipeline passes throughout conflict region Chechnya that has suffered from two wars in 1994 and 1999.[216] As a result of the Russian lobby, the Turkish construction companies GAMA, TEFKEN and ENKA have opposed BTC.[217]

Even though US Government convinced Azeri, Georgian and Turkey's government it is difficult to persuade oil companies AIOC and BP. On the other hand after BP merged with American energy company Amoco in August 1998, BTC-Amoco supported BTC.[218]

In additionally, many European energy companies have interests in Russian gas projects. German E.On Ruhrgas AG and BASF AG have 24.5 % shares in GAZPROM's Northern European Gas Pipeline under the Baltic. The Italian ENI is GAZPROM's partner in the Blue Stream pipeline that carries gas from Russia to Turkey under the Black Sea.[219]

5.3. USA ENERGY POLICY FOR EAST-WEST ENERGY CORRIDOR

Since beginning of alternative transit energy pipelines of Caspian region proposals, due to the fact that American Iran policy the US has supported to Turkish proposal BTC in hopes that east-west pipeline route will bring the nations of the Caspian region closer to the West.[220] The motto of US Caspian policy is three words: "Anywhere but Iran".[221] As

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[214] Pavliuk, Oleksandr & Klympush-Tsintsadze, Ivanna. (2003). The Black Sea Region: Cooperation and Security Building. pp131-132

[215] It was dropped from $18-23 to $10-12 per barrels

[216] Rubin, Barry (Ed.) & Kirisci, Kemal (Ed.). (2001). Turkey in World Politics: An Emerging Multiregional Power. p 230

[217] Ibid. p 183-184

[218] Hundley, Tom. (1999, 25 November). Caspian Sea oil a prize the U.S. wants to control. The Chicago Tribune

[219] Mufson, Steven. (2006, 11 July). Politics Of the Pipelines: U.S. Seeks Ways to Route Natural Gas Around Russia. The Washington Post

[220] Croissant, Michael P. & Aras, Bulent. (1999) Oil and Geopolitics in the Caspian Sea Region. p 118

a result the United States has supported for the completion of Trans-Caspian and BTC pipeline projects.

On the other hand US also want to help Turkey take some pressure off the already congested Turkish Straits. Of course US also want to compensate Turkey's loss due to the fact that the closure of the Kirkuk-Ceyhan pipeline following the Gulf War.[222]

The milestone of the project in OSCE Summit-Istanbul 18 November 1999 USA President Bill Clinton has also signed the BTC Intergovernmental Agreement as witness. This politic victory shows that the BTC pipeline system has been the most likely project as the USA aims to get Central Asian countries away from Russian influence and isolate Iran. At the same time the BTC would bring to the Eastern Mediterranean a supply of oil that is non-OPEC, non-Arab, and from secularised Muslims. [223]

In the lead-up to Blue Stream's opening ceremony, the US criticized the pipeline, calling on Europe to avoid becoming any more dependent on Russia for energy. Similarly US opposed the Iran-Turkey natural gas pipeline which can strengthen Iran's economical and political activity. In March 1999 US Ankara Ambassador Mark Parris emphasized their opposition and the support for priority of Trans-Caspian pipeline.[224]

After 9/11, one needs to bear in mind the fact that the US Government has raised the nation's energy security to the level of top priority which means that the US international policy in the energy sector, including in the Caspian region, has become one of extraordinary importance.[225] The U.S. strategy in the region could be defined as the availability of "multiple pipelines", which means that the already existent pipelines should be supplemented with new ones.[226]

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[221] Hundley, Tom. (1999, 25 November). Caspian Sea oil a prize the U.S. wants to control. The Chicago Tribune

[222] Starr, Frederick S. (Ed.), Cornell, Svante (Ed). (2005). The Baku-Tbilisi-Ceyhan Pipeline: Oil Window to the West, p 116-117

[223] Oran, Baskın (Ed.). (2001). Türk Dış Politikası Volume 2, p 280-282

[224] Ibid. p 282

[225] Kalicki, Jan H. (2001). Caspian Energy at the Crossroads. Foreign Affairs, Vol. 80, No. 5. p 120

[226] Pamir, A. Necdet. (2000). Is There a Future of the Eurasian Corridor? Insight Turkey, Vol. 2, No 3. p 40

Iran was labelled as one of the US's "Axis of Evil". It was reiterated that Iran would be the next target after Iraq. Meanwhile, Israel has insistently reminded Iran's intention to produce nuclear weapons and repeatedly threatened to raid Iran.[227]

The American opposition to Iran as an export route has certainly crated adversity for the Caspian countries and most of oil companies without helping the US Government achieve its objective.[228]

The US realizes that Russian gas will remain crucial to Europe, but it is pushing nations to diversify supplies as soon as possible, thus Russia cannot exploit Europe's energy dependence for political purposes.[229] The US policy of "diversifying energy supply" is actually designed to weaken the US dependence on the Arab-dominated OPEC cartel, which is using its near-monopoly position against industrialised countries. [230]

Most European markets are controlled by the Russian GAZPROM and EU gas diversification aims finding cheap and reliable alternatives. Turkey clearly shows its willing to present just such an alternative. Even though many in the EU bureaucracy have not fully appreciated the importance of the Caspian and Central Asian gas for their markets, the United States has, believing that an East-West energy corridor would tie the two regions closer to Turkey, a NATO ally and EU candidate. Increased intimacy between Turkey and the Caucasus/Central Asia would assist both with the EU's energy-security goals and the region's own reform processes. The challenge for the EU is to address Russian efforts to avoid losing its monopoly power.[231]

USA has promoted the Greek-Turkish Interconnector natural gas pipeline project as a way to reduce tension. It supports transporting Azeri natural gas with this pipeline and discourages devoting to Russian natural gas that comes from Blue Stream.[232]

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[227] Bal İhsan & Laçiner, Sedat & Özcan, Mehmet. (2005). European Union with Turkey: the possible impact of Turkey's membership on the European Union. p 56-57

[228] Peimani, Hooman. (2001). The Caspian Pipeline Dilemma: Political Games and Economic Losses. p 118-119

[229] Mufson, Steven. (2006, 11 July). Politics Of the Pipelines: U.S. Seeks Ways to Route Natural Gas Around Russia. The Washington Post

[230] Kleveman, Lutz. (2003, 20 October). The new Great Game. The Guardian

[231] Starr, Frederick S. (Ed.), Cornell, Svante (Ed). (2005). The Baku-Tbilisi-Ceyhan Pipeline: Oil Window to the West, p 114-115

[232] Kessler, Glenn. (2006, 26 April). Rice Warns Against Russian Gas Monopoly. The Washington Post

The NABUCCO pipeline project seeks to diminish Europe's dependence on Russian gas. Results of different studies about Europe Energy policy, performed by various research institutions and energy companies, as well as the EU itself, are giving signals of significant amounts to be transported via Turkey to the European countries in the near future. With in this context, studies were initiated for another route to reach the European market. This additional route is envisaged to carry the gas coming from Middle East and Caspian sources (e.g. Azerbaijan, Turkmenistan, Iran, Iraq, Egypt) together with the route through Turkey-Greece interconnector to Western Europe. This route is planned to pass through Bulgaria, Romania, Hungary to reach Austria will be new gate to Europe from another angle.

5.4. TURKEY'S ENERGY INVESTMENTS AND REFORMS

During the 1970s, the Turkey's demand for electricity began to exceed supply, and by the late 1970s the power gap began to constrain industry. After 1977 rotating blackouts affecting industrial, commercial, and residential consumers were necessary to meet demand. By 1979 the shortage of foreign exchange had so restricted imports of crude oil that fuel for cars, trucks, and tractors had to be rationed. In the mid-1980s, in an attempt to deal with the energy shortage the Ozal administration launched the BOT system, under which foreign investors would provide the capital and technology to build plants, operate them for a number of years with guaranteed revenues, and finally transfer the units to the government when the investment had been fully returned.

Conventional financing of major infrastructure projects would only increase the amount of foreign credit, so Turkey's Energy Ministry has conceived other options for financing projects. One option used until now has been the so-called BOT model, under which private investors build and operate private sector generation facilities for a set number of years, at which point they transfer ownership to the state. First introduced in 1984 by then Prime Minister Ozal[233], BOT projects have been plagued by legal problems, which have slowed their implementation. Another problem with BOT projects is that they obligate the government to commit to long-term power contracts at predetermined

[233] Kanun No: 3996 Bazı yatırım ve hizmetlerin, yapişletdevret modeli çerçevesinde yaptırılmasını kanunu (Resmi Gazete Tarihi/Sayısı: 13.06.1994 / 21959)

prices. In October 2003, Turkish Energy Minister Guler denied that the government planned to seize four gas-fired and six hydroelectric power plants, all BOT, despite unfavourable contract conditions.

In order to adjust oil product price of refineries to the daily declared price in the world, the Automatic Price System[234] has been adopted. Despite the reforms in energy sector, IEA has warned Turkey in order to restructure the state-owned enterprises, create independent electricity and gas operators and to remove cross-subsidies from electricity and gas prices.[235]

The Transit Passage of Petroleum by Pipelines Law[236] passed from the Parliament in June 2000. The Law ensures enforcement of the provisions of international agreements that Turkey is a signatory party. On April 2001, Turkey ratified the Energy Charter Treaty, the international legal framework for energy investment. Also, in early 2001, the Turkish Parliament passed an energy liberalization law (two complementary bills for electricity and natural gas) aimed at ending the government's monopoly in the energy sector. In December 2003, Parliament passed The Petroleum Market Law[237] that contains reform bill and legislation liberalizing Turkey's energy sector. It aims to remove state controls on the sector, to liberalize pricing (and indigenous content purchase requirements) of oil and oil products, end restrictions on vertical integration, and integrate pipeline, refining, and distribution functions. TUPRAS and POAS[238] were privatized in 2005. Also, as a result of this Law, price ceilings and import quotas on petroleum products were lifted in early 2005.[239] Thus, Turkey's energy investment climate is more than promising for ambitious international projects.[240]

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[234] Karar: Hampetrol ve Petrol ürünlerinin Alım, Satım, Fiyatlandırma Esasları ile Akaryakıt Fiyat Istikrar Fonu'nun Isleyisi. (Resmi Gazete Tarihi/Sayısı: 14.03.1998 / 23286)
[235] Macalister, Terry. (2006, 23 June). The energy debate hots up. The Guardian
[236] Kanun No: 4586 Petrolün boru hatları ile transit geçişine dair kanun (Resmi Gazete Tarihi/Sayısı: 29.06.2000 / 24094)
[237] Kanun No: 5015 Petrol piyasası kanunu (Resmi Gazete Tarihi/Sayısı: 20.12.2003 / 25322)
[238] Turkey's major petroleum product retailer
[239] Macalister, Terry. (2006, 23 June). The energy debate hots up. The Guardian
[240] Pamir, A. Necdet. (2006). Energy Security and The Most Recent Lesson:The Russia-Ukraine Crisis. p 19

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 South Eastern Turkey). Since 1961, only 1,400 exploration and appraisal wells have been drilled in Turkey. In July 2003, Australia's Amity Oil reported a commercial discovery at its Adatepe-1 well in the Thrace Basin. [241]

In early 2004, the Turkish government approved the sale of a 66.76% stake in TUPRAS for $1.3 billion to a group led by Russia's Tatneft. In late May 2004, Turkish Supreme Court suspended the sale after a union filed a lawsuit claiming that privatization procedures were not properly followed. In March 2005, Turkey's government sold a 14.56 percent share in TUPRAS for $446 million. In April 2005, Turkey's privatization board announced its intention to open a new tender for the remaining 51 % of the company. As a result of the tender, the consortium led by Turkey's Koc Holding and including Anglo-Dutch oil giant Royal Dutch Shell PLC won. The Koc-Shell consortium officially purchased a controlling stake of Turkey's state-owned oil refiner TUPRAS and they paid $4.14 billion to the country's Privatization Administration; the consortium officially took control of the 51 % stake.

On 2 May 2001 the Natural Gas Market Law[242] was adapted liberal and competitive economy demand. The new law has changed strict controlled opening of the gas industry to competition and it aims harmonising Turkish legislation with EU law. The Act allows a 12 months transition period.

Natural gas supply, transmission and distribution are to be unbundled. After 2009 BOTAS is to be split into three units, one responsible for trading (import and sales), which is to be privatized later, the other for transmission, which is to be kept as State Economic Enterprise and the last one is storage activities. The three distributors owned by BOTAS, and they are to be corporative and then privatised. BOTAS will continue to own and operate the national transmission network, as well as LNG and storage facilities. It will offer services under a system of non-discriminatory, regulated and

[241] Joint Petroleum Activities in Turkey. TPAO
[242] Kanun No: 4646 Doğal gaz piyasası kanunu (Resmi Gazete Tarihi/Sayısı: 02.05.2001 / 24390)

published prices and access conditions. These price and access conditions are to be regulated by a new regulatory agency.

On 20 February 2001, Turkey passed the long-anticipated Electricity Market Law[243], which paves the way for a free market in power generation and distribution in the country. Among other things, the legislation calls for: TEAS to be broken up into separate generation, distribution, and trade companies; Trade and generation companies to be privatized, while transmission remains in state hands; and a new regulatory board to be set up which will oversee the Turkish power market, set tariffs, issue licenses, and prevent uncompetitive practices. The new law throws into doubt the fate of dozens of BOT and Transfer Operational Rights power projects. Current plans are for Turkey's power distribution and generation network to be privatized by the end of 2006, with the country being divided into 17-20 power distribution areas.

In July 2004, the Turkish government backed off after introducing a draft bill that the World Bank, EU and others criticized for weakening Turkey's power and gas liberalization program. The bill would have strengthened the role of the Turkish Power Trading Company, which owns 84 percent of the sector, and possibly made it easier for the state to acquire BOT power plants.

Aside from this large coal-fired facility, Turkey is mainly focused on increased natural gas use for thermal electric power production. Several pipeline projects supply gas to these facilities, as well as several LNG terminals. BOTAS is expanding its natural gas transmission network along the Black Sea, East and West Turkey.

In addition to increasing domestically generated electricity through construction of new power plants, Turkey is looking outside its borders to help meet the country's growing power demand.

From point of energy efficiency and renewable energy sources, Turkey is the beginning of the coherent on comprehensive policy, and it requires more effort. As a member of

[243] Kanun No: 4628 Elektrik piyasası kanunu (Resmi Gazete Tarihi/Sayısı: 03.03.2001 / 24335)

IEA, Turkey has already agreed to the obligation of holding oil stocks equivalent 90 days of imports[244]

Although it is obviously desirable to use indigenous and renewable energy sources as much as possible, only some part of this remaining potential can be effectively and productively used. The remaining potential for constructing new large dams for hydro-electric power generation is limited but nevertheless important. A group of projects on the agenda called 'intergovernmental hydro projects' comprise such dams. The hydraulic energy potential related to the construction of small dams is also relatively important. In total, there are 366 hydro projects (few of which are large) on the agenda at varying degrees of preparation. It is estimated that if all of the hydro projects on the agenda are completed, together with already existing hydro capacity, 45% of total hydro capacity would be reached. But for the time being this ratio represents a potential total.

Turkey has introduced many European energy laws as well as ratifying the Kyoto protocol aimed at cutting carbon emissions and therefore reducing climate change. In 2004, the World Bank granted Turkey a $200 million Energy Reform Loan to encourage the use of renewable energy.[245]

The IMF and World Bank are pressing Turkey to move towards rapid privatization of the country's power sector in order to increase efficiency and to relieve pressure on the government's budget situation. The Liberalization reform are still slow privatization has been slowed by lack of investor interest, as well as economic and political uncertainty. The privatizing the country's regional power distributors haven't been completed yet.

[244] Bal İhsan & Laçiner, Sedat & Özcan, Mehmet. (2005). European Union with Turkey: the possible impact of Turkey's membership on the European Union. p 234

[245] Macalister, Terry. (2006, 23 June). The energy debate hots up. The Guardian

VI RESULTS

Turkey will become an eventual “transit country”, and will be a key component of a future “energy gateway” by connecting Europe with the Caspian region, the Middle East and the Mediterranean. The strategic importance of Turkey is always known by EU member states, so it would enhance Turkey’s position during the full membership talks. EU would take a closer interest in energy developments in Turkey, although Turkey’s quest for full membership of the EU would not succeed because of the pipeline issue alone. The transportation of oil and gas resources through the various pipelines going through Turkey will enable the European countries to diversify and secure their energy supply.

Reshaping the Central Eurasian energy architecture, the BTC project, together with a parallel SCS gas pipeline, has had an enormous influence on Turkish relations with all the key actors in the region: the South Caucasian states (Azerbaijan and Georgia), the Central Asian republics (Kazakhstan, Turkmenistan, and Uzbekistan), Russia, Iran, Iraq, the EU and the US. Because of their common interests all these countries seek collaboration with Turkey.

Turkey was cited in several significant energy projects that will considerably increase the amount of gas flowing to Europe in the next 5-10 years. These projects are: The NABUCCO pipeline that will carry the Caspian Basin, Iranian and the Middle Eastern gas to Europe over Turkey, Bulgaria, Romania, Hungary, and Austria. Turkey-Greek interconnection first phase transports gas to Greece by connecting local transmission line. After extending the Turkey-Greece pipeline, the gas coming from the South and East will be carried to the EU and the Balkans up to Italy.

The prospective Trans-Caspian pipeline that will carry Central Asian gas to Western Balkans, European Neighbourhood Policy countries and Europe via Southern Caucasus or Iran-Turkey pipeline as long as the political circumstances are suitable. The Iraqi and East Mediterranean pipelines aim to carry the Egyptian, Syrian, Iraqi and Qatar gas to EU via Turkey and the NABUCCO line. Turkey should focus on Iraqi gas pipeline which can be pioneer project for the transportation of Qatar natural gas.

Blue Stream was initially planned for Turkish indigenous market but next step transmission of Russian Gas to Europe via NABUCCO and Turkey-Greece-Italy pipeline instead of Ukraine pipeline.

Samsun-Ceyhan crude oil pipeline bypasses Turkish Straits for the Russian and Kazakh oils and save from tanker accident as well as BTC.

Ceyhan Port becomes a successful supply centre as Rotterdam on the world oil market. The Iraq-Turkey crude oil pipeline is beginning of Ceyhan project, BTC is milestone for Ceyhan. After completion of Samsun-Ceyhan crude oil pipeline Ceyhan will turn into an oil stock exchange, it will be a centre where Iraqi, Azeri, Russian and Kazakh oil meet. The new refinery in Ceyhan is planned to supply both foreign and indigenous markets. Thus, Turkey becomes a significant exporter of petroleum production.

During the BTC, Turkey has formed a strategic partnership with Azerbaijan and Georgia that will tie the three countries more closely together over the course of the next four decades. This long term linkage has caused all three states to be more cautious in their mutual interaction. Even at times of particularly harsh economic or political disputes, leaders have been trying to resolve them quickly. It seems the pipelines become peace pipelines in the Region and ease the solution of international disputes.

LNG is valuable element in order to diversify natural gas especially for internal market. Turkey should complete underground storage projects, which can be used as a buffer between transportation and distribution, due to guarantee enough supplies of natural gas were in place for seasonal demand shifts, and unexpected demand surges against any unforeseen accidents, natural disasters, or other occurrences that may affect the production or delivery of natural gas. Similarly, LNG Import terminal can be used as an alternative saviour for a short term urgent requirement.

The necessary pipeline infrastructure will not be in place for several years. In the meantime, however, officials in Turkey will somehow have to address the immediate problem of how to deal with an over-contracted gas market in Turkey. Gas re-exports, re-sales, transfers and transits will eventually provide relief for the saturated gas market, but it seems that re-exports will not be possible before end of 2006, and transfers may

not begin until at least 2010. Therefore, meanwhile if Turkey completes its internal natural gas transmission projects, introduce natural gas to residence and industry and integrate with main incoming and outgoing pipelines, its internal natural gas demand will increase and fulfil expected short-term over saturation.

The sharp growths of the Turkish energy sector have been accompanied and strengthen by institutional reforms. One of the most significant developments has been liberalization of all energy sectors, including electricity production and distribution, to private capital both national and foreign. Private capitals are involved in the energy sector through the BOT and BOO contracts. The new energy law encourages such foreign and indigenous energy investments

Turkey aims at full utilization of the indigenous hard coal and lignite reserves, hydro and other renewable resources such as wind, geothermal and solar energy to meet the demand growth in a sustainable manner. Despite the environmental factor, because of the huge coal reserves, coal is used for electricity generation in the long term, to the benefit of energy diversity and security of supply. Accelerating economic hydropower projects (completion of GAP), including refurbishment, consistent with the protection of the environment, to utilise the remaining hydropower potential supply big amount of Turkish energy demand. Turkey geothermal energy potential is one of the leading country, however it usage very low. Turkey should utilize and encourage geothermal energy investments.

Enact the Renewable Energy Law as envisaged and monitor and evaluate its cost and effectiveness, consider a combination of wind power and pumped storage for this purpose. Investigate and extend which policies and measures are needed to promote the use of renewable in the heat production, co-generation and transport.

Although there is no nuclear power yet in Turkey But some new nuclear plants are expected to be built during the five-year period. Integration of nuclear energy into the Turkish energy mosaic will also be one of the main elements in responding to the growing electricity demand while avoiding increasing dependence on imported fuels.

As Turkish founder Mustafa Kemal Ataturk said “Peace at home, Peace in the world”, establishing and maintaining friendly and mutually beneficial relations with all countries, promoting regional and international cooperation, resolving conflicts only through peaceful means, and contributing to regional and international peace, stability, security and prosperity have always been the primary objectives of Turkish foreign policy. Turkey both has vital interests in promoting peace, stability and democratic values in Turkey itself as well as in the Middle East and Caspian regions. The close connection between internal stability and foreign policy is neither unusual nor new. Turkey's energy policy is therefore closely linked with its foreign policy and how Turkey evolves in both, is important to EU and the USA.

As pivotally located as it is, Turkey will therefore remain an important partner to Western, Russian, Caucasian and Middle Eastern energy and foreign policy initiatives. Its strategic partnership with the USA, its prospective membership of the EU, its cultural, historical and geographical ties to Eurasia and the Middle East, make Turkey an indispensable partner on all regional energy and foreign policy matters.

BIBLIOGRAPHY

Books & Reports

Adaman, Fikret (Ed.) & Murat Arsel (Ed.). (2005). Environmentalism in Turkey: Between Democracy and Development? Aldershot: Ashgate Publishing Ltd

Adams, Terry D.& Emerson, Michael & Mee, Laurence D. & Vahl, Marius. (2002). Europe's Black Sea Dimension, Brussels: Centre for European Policy Studies

Akiner, Shirin (Ed.). (2004). The Caspian Politics, energy and security. Abingdon, Oxfordshire: RoutledgeCurzon

Amineh, M.P. (2003). Globalisation, Geopolitics and Energy Security in the central Eurasia and the Caspian Basin. The Hague: Clingendael International Energy Programme (CIEP)

Arbatov, A.G. & Kaiser, Karl & Legvold, Robert (ed.).(1999). Russia and the West: The 21st Century Security Environment Volume 1. New York: M.E. Sharpe

Aydın, Mustafa. (2000). New Geopolitics of Central Asia and the Caucasus: Causes of Instability and Predicament. SAM Papers No: 2/2000. Ankara: SAM Center for Strategic Research

Bal İhsan & Laçiner, Sedat & Özcan, Mehmet. (2005). European Union with Turkey: the possible impact of Turkey's membership on the European Union. Ankara: ISRO

Barton, Barry (Ed.) & Redgwell, Catherine (Ed.) & Ronne, Anita (Ed.). (2005). Energy Security: Managing Risk in a Dynamic Legal and Regulatory Environment. Oxford: Oxford University Press

BP, Statistical Review of World Energy 2005

Buljevich, Esteban C. & Park, Yoon S. (1999). Project Financing and the International Financial Markets. Dordrecht: Kluwer Academic Publishers

Büyükakıncı, Erhan. (2000). Patterns of Integration in Central Asia. Perceptions Volume VII / March-May 2000. Ankara: SAM Center for Strategic Research

Campbell, Colin J. (2005). Oil Crisis. Essex: Multi-Science Publishing

Cornot-Gandolphe, Sylvie & Dickel, Ralf. (2002). Flexibility in Natural Gas Supply and Demand, Paris: OECD/IEA

Croissant, Michael P. & Aras, Bulent. (1999) Oil and Geopolitics in the Caspian Sea Region. Westport CT: Praeger Publishers

Dartan, Muzaffer. (1996). Privatisation in the UK and Turkey with particular reference to the Coal Sector. Istanbul: Marmara University European Community Institute

Devlet, Nadir. (2004). Turkey's Energy Policy in the Next Decade. Perceptions Volume IX / March-May 2004. Ankara: SAM Center for Strategic Research

Egenhofer, Christian & Legge, Thomas. (2001). Security of Energy Supply: A question for policy or the markets?. Brussels: Centre for European Policy Studies (CEPS)

European Commission. (2003).World energy, technology and climate policy outlook 2030-WETO. Brussels: European Commission Directorate-General for Research

Evans, Andrew. (1999). The EU Structural Funds. Oxford: Oxford University Press

Gazel, Fırat. (2003). Mavi Akım: Avrasya'da Çözümsüzlüğün Öyküsü. İstanbul: Metis Yayınları

Gül, Atakan & Gül-Yazgan, Ayfer. (1995). Avrasya Boru Hatlari ve Türkiye. Istanbul: Baglam Yayincilik

Gladman, Imogen (Ed.). (2003). Eastern Europe, Russia and Central Asia 2004. London: Europa Publications

Hansen, Sander. (2003). Pipeline Politics: The struggle for control of the Eurasian energy resources. The Hague: The Clingendael Institute

Haugland, Torleif& Bergesen, Helge & Roland, Kjell. (1998). Energy Structures and Environmental Futures. New York: Oxford University Press

Hill, Fiona. (2004). Pipelines in the Caspian Catalyst or Cure-all? The Brookings Institution Winter/Spring 2004

Hoekman, Bernard (Ed.) & Togan, Sübidey (Ed.). (2005). Turkey: Economic Reform and Accession to the European Union. Washington DC: World Bank Publications

IEA. (1997). North Africa oil and gas. Paris: OECD/IEA

IEA. (2001). Oil Supply Security: The Emergency Potential of IEA Countries in 2000. Paris: OECD/IEA

IEA. (2005). Energy policies of IEA Countries: Turkey 2005 Review. Paris: OECD/IEA

Janusz, Barbara. (2005). The Caspian Sea Legal Status and Regime Problems. London: Chatham House

Kalicki, Jan H. (2001). Caspian Energy at the Crossroads. Foreign Affairs, Vol. 80, No. 5. New York: Council on Foreign Relations

Karaosmanoğlu, Filiz. (2004). Enerjinin Önemi, Sınıflandırılması ile Kaynak ihtiyaç dengesi ve gelecekteki enerji kaynakları. Dünya ve Türkiye'deki Enerji ve su kaynaklarının, ulusal ve uluslararasi güvenlige etkileri 15-16 Ocak 2004. İstanbul: TC Genelkurmay Başkanlığı Harp Akedemileri Komutanlığı

Karluk, Rıdvan. (1996). Avrupa Birliği ve Türkiye, Istanbul: IMKB

Kassim, Hussein (Ed.) & Menon, Anand (Ed.). (1996). The European Union and National Industrial Policy. London: Routledge

Luciani, Giacomo. (2004). Security of Supply for Natural Gas Markets What is it and what is it not?. Brussels: Centre for European Policy Studies (CEPS)

Martin, Lenore (Ed.) & Keridis, Dimitris (Ed.). (2004). The Future of Turkish Foreign Policy. MIT Press

McGowan, Francis. (1996). European Energy Policies in a Changing Environment. Heidelberg: Physica-Verlag

Midttun, Atle (Ed.). (1997). European Electricity Systems in Transition. A Comparative Analysis of Policy and Regulation in Western Europe. Oxford: Elsevier Science Ltd

Molle, Willem. (2006). The Economics of European integration: Theory, Practice and Policy. 5th Ed. Aldershot: Ashgate Publishing Ltd

Nugent, Neill. (1994). The Government and Politics of the European Union. London: MacMillan

Oran, Baskın (Ed.). (2001). Türk Dış Politikası Volume 2, İstabul: İletişim Yayınları

Pamir, A. Necdet. (2000). Is There a Future of the Eurasian Corridor? Insight Turkey, Vol. 2, No 3. Ankara: ANKAM

Pamir, A. Necdet. (2006). Energy Security and The Most Recent Lesson: The Russia-Ukraine Crisis. Ankara: Center for Eurasian Strategis Studies (ASAM)

Pamir, Necdet. (2004). Orta Asya ve Kafkasya'da Güvenlik Arayışları Sürecinde Bölgedeki Enerji Kaynaklarının Rolü. In: Bal, İdris (Ed.). 21. Yüzyılda Türk Dış Politikası. Ankara: Nobel Yayın Dağıtım

Pavliuk, Oleksandr & Klympush-Tsintsadze, Ivanna. (2003). The Black Sea Region: Cooperation and Security Building. New York: M.E. Sharpe

Peimani, Hooman. (2001). The Caspian Pipeline Dilemma: Political Games and Economic Losses. Westport, CT: Praeger Publishers

Roberts, John. (2004). The Turkish Gate Energy Transit and Security Issues. Brussels: Centre for European Policy Studies (CEPS)

Rubin, Barry (Ed.) & Kirisci, Kemal (Ed.). (2001). Turkey in World Politics: An Emerging Multiregional Power. Boulder CO: Lynne Rienner Publishers

Sampson, Anthony. (1976). Günümüzde Petrol Oyunu (Seven Sisters). İstanbul: Altın Kitaplar Yayınevi

Sarıibrahimoğlu, Lale. (1997). Kurt Kapanında Kısır Siyaset. Ankara: İmge Kitabevi

Scharpf, Fritz. (1988). The Joint-decision Trap: Lessons from German Federalism and European Integration. Public Administration, Vol 66, No 4

Starr, Frederick S. (Ed.), Cornell, Svante (Ed). (2005). The Baku-Tbilisi-Ceyhan Pipeline: Oil Window to the West, Washington DC: Central Asia-Caucasus Institute Silk Road Studies Program

Udum, Şebnem. (2001). The Politics of Caspian Region Energy Resources: A Challange for Turkish Foreign Policy. Perceptions Volume VI / Dec 2001-Feb 2002. Ankara: SAM Center for Strategic Research

Wiessala, Georg (Ed.) & Edwards, Geoffrey(Ed.). (1999). The European Union: Annual Review 1998/1999. Oxford: Blackwell Publishing

Articles

Açıkgöz. (2003, 2 April). Council of Europe Report
http://assembly.coe.int/main.asp?Link=/documents/records/2003/e/0304021500eadd1.htm

BBC News. (2006, 14 July). Israel crisis keeps oil near peak. ISRO, the Journal of Turkish Weekly
http://www.turkishweekly.net/news.php?id=34964 (Accessed on 30/07/2006)

BBC News. EU pushes for Kazakh gas pipeline. (2006, 5 May). BBC News
http://news.bbc.co.uk/2/hi/asia-pacific/4976106.stm (Accessed on 30/07/2006)

Blythe, Nils. (2006, 14 July). Why oil will hit $100 a barrel. BBC News
http://news.bbc.co.uk/2/hi/business/4713186.stm (Accessed on 10/05/2006)

Caspian Oil Reaches Turkey's Mediterranean Port Ceyhan. (2006, 29 May). ISRO, the Journal of Turkish Weekly
http://www.turkishweekly.net/news.php?id=32563 (Accessed on 19/06/2006)

Congressional Daily Digest. (1999, 3 March). 106th Congress.

Coskun, Orhan. (2005, March 4). Turkey prepares for arbitration on Iran gas price. Turkish Daily News

Dobra-Manço, Yasemin. (1998, 15 December).SMITHSONIAN calls Bosphorus a disaster waiting to happen. Turkish Daily News

Eldar, Akiva. (2003, 1 April).The Pipeline to Haifa. CounterPunch
http://www.counterpunch.org/eldar04012003.html (Accessed on 03/06/2006)

Explosion hits Iran-Turkey gas pipeline. (2006, 30 September). Turkish Daily News

Gow, David . (2006, 11 May). Cheney has Turkey in his sights. The Guardian

Grepmeier, Klaus. (2005, April). Geothermal energy utilisation in Turkey. Geothermische Energie 46, 12. Jahrgang/Heft 2/4
http://www.geothermie.de/gte/gte46/geothermal_energy_utilisation.htm (Accessed 26/06/2006)

Gultasli, Selcuk.(2006, 11 March).Turkey Included in EU's Strategic Energy Projects. ISRO, the Journal of Turkish Weekly
http://www.turkishweekly.net/news.php?id=27603 (Accessed on 28/07/2006)

Hoyos, C. (2003, 15 August). Energy companies see a big future for gas. But will the West's increasing dependence imperil its fuel security?. Financial Times

Hurriyet. (2006, 14 July).President Sezer: New pipeline puts Turkey in center of global energy map. ISRO, the Journal of Turkish Weekly
http://www.turkishweekly.net/news.php?id=34944 (Accessed on 23/07/2006)

Hundley, Tom. (1999, 25 November). Caspian Sea oil a prize the U.S. wants to control. The Chicago Tribune

Investment necessary for security of supply, all eyes on distribution bids (2007, 6 January). Turkish Daily News

İtalyanların yeni gündemi enerji. (2005, 24 November), AKSAM
http://www.aksam.com.tr/haber.asp?a=15803,6 (Accessed on 11/08/2006)

Kessler, Glenn. (2006, 26 April). Rice Warns Against Russian Gas Monopoly. The Washington Post

Kimmage, Daniel. (2006, 2 February). Analysis: Turkmen Government Steps Up Gas Diplomacy. Radio Free Europe / Radio Liberty
http://www.rferl.org/featuresarticle/2006/02/989400c2-8941-4cca-be67-6e88db193111.html (Accessed on 03/04/2006)

Kleveman, Lutz. (2003, 20 October). The new Great Game. The Guardian

Kohen, Sami. (1994, 9 June).Turkey Stems Bosphorus Shipping. The Christian Science Monitor

Kramer, Andrew E. (2005, 18 November). Russia Plans to Use Turkey as Hub for Gas. The New York Times

Kramer, Heinz. (2000). A Changing Turkey: The Challenge to Europe and the United States. Washington D.C.: Brookings Institution Press

Litvin, Daniel. (2006, 4 January). Oil, gas and imperialism. The Guardian

Lobjakas, Ahto. (2006, 7 June).EU: Brussels Targeting Central Asia's Energy. Radio Free Europe / Radio Liberty
http://www.rferl.org/featuresarticle/2006/06/63d2134d-d42d-49c4-9d08-9b3e57ae7400.html (Accessed on 13/07/2006)

LUKOIL delegation visits Samsun for preliminary research. (2006, 29 August). Turkish Daily News

Macalister, Terry. (2006, 23 June). The energy debate hots up. The Guardian

Mesci, Evren & Aydilek, Olcay (2006, 1 March). Kuzey Irak'la paralel boru hattı için kulis. Sabah
http://www.sabah.com.tr/2006/03/01/gnd101.html (Accessed on 03/03/2006)

Mufson, Steven. (2006, 11 July). Politics Of the Pipelines: U.S. Seeks Ways to Route Natural Gas Around Russia. The Washington Post

Nükleer santral Sinop'a. (2006, 12 April). Milliyet
http://www.milliyet.com.tr/2006/04/12/son/sontur54.asp (Accessed on 21/04/2006)

Onal, Cumali. (2006, 20 March). Egypt-Turkey Gas Pipeline to Bring Peace to Region. Zaman

O'Rourke, Breffni. (2006, 27 June). Caspian: EU Invests In New Pipeline. Radio Free Europe / Radio Liberty
http://www.rferl.org/features/features_Article.aspx?m=06&y=2006&id=03531B6D-AD4F-4488-B54D-177E9411EB42 (Accessed on 13/08/2006)

Parfitt,Tom. (2006, January 2). Russia turns off supplies to Ukraine in payment row, and EU feels the chill. The Guardian

Penketh, Anne & Sengupta, Kim. (2004, 12 July). Georgia's president warns Russia after clashes. The Independent

Piebalgs, Andris. (2005, 25 May). BTC opening ceremony.
http://europa.eu.int/rapid/pressReleasesAction.do?reference=SPEECH/05/301&format=HTML&aged=1&language=EN&guiLanguage=en (Accessed on 17/03/2006)

Pomfret, John. (1995, 28 April). In Central Asia, a Rush For Control of Black Gold. International Herald Tribune

Reuters. (2006, 28 April) Oil rises on Iran nuclear jitters
http://asia.news.yahoo.com/060428/3/2jtuq.html (Accessed on 30/04/2006)

Reuters. (2006, 2 August). Northern oil pipeline to Turkey hit by sabotage. Turkish Daily News

Socor, Vladimir. (2006, 30 March). Azerbaijan Spearheading Initiative on Trans-Caspian Gas Pipeline. Eurasia Daily Monitor
http://www.jamestown.org/edm/article.php?article_id=2370929 (Accessed on 20/06/2006)

Socor, Vladimir. (2006, 30 June). Pipeline Project can Diversify Europe's Gas Supplies. Eurasia Daily Monitor
http://www.jamestown.org/edm/article.php?article_id=2371236 (Accessed on 11/07/2006)

Samsun-Ceyhan Pipeline (SCP) Scheduled for 2009. (2006, 24 June). ISRO, the Journal of Turkish Weekly
http://www.turkishweekly.net/news.php?id=34088 (Accessed on 28/07/2006)

Torbakov, Igor. (2002, December 27). Turkey-Russia: Competition & Cooperation. EURASIANET
http://www.eurasianet.org/departments/insight/articles/eav122702.shtml (Accessed on 28/04/2006)

Tran, Mark. (2006, January 3). Q&A: the gas crisis - update. The Guardian

Turkey to rule on LUKOIL refinery by end of 2006, (2006, 10 July), Reuters
http://asia.news.yahoo.com/060710/3/2mym8.html (Accessed on 12/08/2006)

Legislations

Commission Staff Working Paper. SEC(2001) 438 Completing the internal energy market
http://ec.europa.eu/energy/electricity/legislation/doc/staff_working_paper/438.pdf
(Accessed on 14/01/2007)

Communication from the Commission COM/2001/0580 of 23.10.2001 on the implementation of the first phase of the European Climate Change Programme
http://europa.eu.int/eur-lex/lex/LexUriServ/LexUriServ.do?uri=CELEX:52001DC0580:EN:HTML (Accessed on 14/01/2007)

Communication COM/2003/262 from the Commission to the Council and the European Parliament on the development of energy policy for the Enlarged European Union, its neighbours and partner countries
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52003DC0262:EN:HTML
(Accessed on 14/01/2007)

Council Decision 91/565/EEC of 29 October 1991 concerning the promotion of energy efficiency in the Community (SAVE programme)
http://europa.eu.int/eur-lex/lex/LexUriServ/LexUriServ.do?uri=CELEX:31991D0565:EN:HTML (Accessed on 14/01/2007)

Council Decision 96/737/EC of 16 December 1996 concerning a multiannual programme for the promotion of energy efficiency in the Community - SAVE II
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31996D0737:EN:HTML
(Accessed on 14/01/2007)

Council Decision 98/352/EC of 18 May 1998 concerning a multi-annual programme for the promotion of renewable energy sources in the Community (ALTENER II)
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31998D0352:EN:HTML
(Accessed on 14/01/2007)

Council Decision 1999/21/Euratom of 14 December 1998 adopting a multi-annual framework programme for actions in the energy sector (1998-2002) and connected measures
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31999D0021:EN:HTML
(Accessed on 14/01/2007)

Council Decision 1999/22/EC of 14 December 1998 adopting a multi-annual programme of studies, analyses, forecasts and other related work in the energy sector (1998-2002)
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31999D0022:EN:HTML
(Accessed on 14/01/2007)

Council Decision 1999/23/EC of 14 December 1998 adopting a multi-annual programme to promote international cooperation in the energy sector (1998 to 2002)
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31999D0023:EN:HTML
(Accessed on 14/01/2007)

Council Decision 1999/24/EC of 14 December 1998 adopting a multi-annual programme of technological actions promoting the clean and efficient use of solid fuels (1998-2002)
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31999D0024:EN:HTML
(Accessed on 14/01/2007)

Council Decision 2001/353/EC of 9 April 2001 laying down the new guidelines applicable to actions and measures to be taken under the multi-annual programme to promote international cooperation in the energy sector (1998 to 2002) under the multi-annual framework programme for actions in the energy sector and connected measures
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32001D0353:EN:HTML
(Accessed on 14/01/2007)

Council Decision 2002/358/EC of 25 April 2002 concerning the approval, on behalf of the European Community, of the Kyoto Protocol to the United Nations Framework Convention on Climate Change and the joint fulfilment of commitments thereunder
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32002D0358:EN:HTML
(Accessed on 14/01/2007)

Council and Commission Decision 98/181/EC, ECSC, Euratom of 23 September 1997 on the conclusion, by the European Communities, of the Energy Charter Treaty and the Energy Charter Protocol on energy efficiency and related environmental aspects
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31998D0181:EN:HTML
(Accessed on 14/01/2007)

Council Directive 68/414/EEC of 20 December 1968 imposing an obligation on Member States of the EEC to maintain minimum stocks of crude oil and/or petroleum products http://europa.eu.int/eur-lex/lex/LexUriServ/LexUriServ.do?uri=CELEX:31968L0414:EN:HTML (Accessed on 14/01/2007)

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 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31973L0238:EN:HTML (Accessed on 14/01/2007)

Council Directive 93/76/EEC of 13 September 1993 to limit carbon dioxide emissions by improving energy efficiency (SAVE) http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31993L0076:EN:HTML (Accessed on 14/01/2007)

Council Directive 2004/67/EC of 26 April 2004 concerning measures to safeguard security of natural gas supply http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32004L0067:EN:HTML (Accessed on 14/01/2007)

Council Resolution of 17 September 1974 concerning a new energy policy strategy for the Community http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31975Y0709(01):EN:HTML (Accessed on 14/01/2007)

Council Resolution of 9 June 1980 concerning new lines of action by the Community in the field of energy saving http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31980Y0618(02):EN:HTML (Accessed on 14/01/2007)

Decision No 1254/96/EC of the European Parliament and of the Council of 5 June 1996 laying down a series of guidelines for trans-European energy networks http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31996D1254:EN:HTML (Accessed on 14/01/2007)

Decision No 1741/1999/EC of the European Parliament and of the Council of 29 July 1999 amending Decision No 1254/96/EC laying down a series of guidelines for trans-European energy networks
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31999D1741:EN:HTML
(Accessed on 14/01/2007)

Decision No 646/2000/EC of the European Parliament and of the Council of 28 February 2000 adopting a multiannual programme for the promotion of renewable energy sources in the Community (Altener) (1998 to 2002)
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32000D0646:EN:HTML
(Accessed on 14/01/2007)

Decision No 647/2000/EC of the European Parliament and of the Council of 28 February 2000 adopting a multi-annual programme for the promotion of energy efficiency (SAVE) (1998 to 2002)
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32000D0647:EN:HTML
(Accessed on 14/01/2007)

Decision No 1230/2003/EC of the European Parliament and of the Council of 26 June 2003 adopting a multi-annual programme for action in the field of energy: "Intelligent Energy - Europe" (2003 - 2006)
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32003D1230:EN:HTML
(Accessed on 14/01/2007)

Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 concerning common rules for the internal market in electricity
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31996L0092:EN:HTML
(Accessed on 14/01/2007)

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
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32003L0054:EN:HTML
(Accessed on 14/01/2007)

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

http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32003L0055:EN:HTML (Accessed on 14/01/2007)

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
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32003L0087:EN:HTML (Accessed on 14/01/2007)

Directive 2005/89/EC of 18 January 2006 concerning measures to safeguard security of electricity supply and infrastructure investment
http://europa.eu.int/eur-lex/lex/LexUriServ/site/en/oj/2006/l_033/l_03320060204en00220027.pdf (Accessed on 14/01/2007)

Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32006L0032:EN:HTML (Accessed on 14/01/2007)

Green Paper COM/2000/0769 Towards a European strategy for the security of energy supply
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52000DC0769:EN:HTML (Accessed on 14/01/2007)

Green Paper COM/2005/0265 on Energy Efficiency or Doing More With Less
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52005DC0265:EN:HTML (Accessed on 14/01/2007)

Kanun No: 3996 Bazı yatırım ve hizmetlerin, yapişletdevret modeli çerçevesinde yaptırılmasını kanunu (Resmi Gazete Tarihi/Sayısı: 13.06.1994 / 21959)
http://www.mevzuat.adalet.gov.tr/html/847.html (Accessed on 14/01/2007)

Kanun No: 4586 Petrolün boru hatları ile transit geçişine dair kanun (Resmi Gazete Tarihi/Sayısı: 29.06.2000 / 24094)
http://www.mevzuat.adalet.gov.tr/html/1124.html (Accessed on 14/01/2007)

Kanun No: 4628 Elektrik piyasası kanunu (Resmi Gazete Tarihi/Sayısı: 03.03.2001 / 24335)
http://www.mevzuat.adalet.gov.tr/html/1130.html (Accessed on 14/01/2007)

Kanun No: 4646 Doğal gaz piyasası kanunu (Resmi Gazete Tarihi/Sayısı: 02.05.2001 / 24390)
http://www.mevzuat.adalet.gov.tr/html/1139.html (Accessed on 14/01/2007)

Kanun No: 5015 Petrol piyasası kanunu (Resmi Gazete Tarihi/Sayısı: 20.12.2003 / 25322)
http://www.mevzuat.adalet.gov.tr/html/1310.html (Accessed on 14/01/2007)

Karar: Hampetrol ve Petrol ürünlerinin Alım, Satım, Fiyatlandırma Esasları ile Akaryakıt Fiyat Istikrar Fonu'nun Isleyisi. (Resmi Gazete Tarihi/Sayısı: 14.03.1998 / 23286)

Resolution on the Commission White Paper on an Energy Policy for the European Union (COM(95)0682 - C4-0018/96)
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:51996IP0326(01):EN:HTML
(Accessed on 14/01/2007)

Resolution on the Commission communication: Energy for the future: renewable sources of energy - White Paper for a Community Strategy and Action Plan (COM(97)0599 C4-0047/98)
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:51998IP0207:EN:HTML
(Accessed on 14/01/2007)

Single European Act
http://europa.eu.int/eur-lex/en/treaties/selected/livre509.html (Accessed on 14/01/2007)

Treaty of Amsterdam amending the Treaty on European Union, the Treaties establishing the European Communities and certain related acts
http://europa.eu.int/eur-lex/lex/en/treaties/dat/11997D/htm/11997D.html#0001010001
(Accessed on 14/01/2007)

The Treaty on European Union
http://europa.eu.int/eur-lex/en/treaties/dat/EU_treaty.html (Accessed on 14/01/2007)

The Treaty on EU Article 154, Trans European Networks
http://eur-lex.europa.eu/en/treaties/dat/12002E/htm/C_2002325EN.003301.html
(Accessed on 14/01/2007)

United Nations Convention on the Law of the Sea (10 December 1982) Delimitation of the territorial sea between States with opposite or adjacent coasts UNCLOS Article 15 http://www.un.org/Depts/los/convention_agreements/texts/unclos/closindx.htm (Accessed on 14/01/2007)

United Nations Convention on the Law of the Sea (10 December 1982) Right of land-locked States and from the Sea and freedom of Transit UNCLOS Article 69 & 124–132 http://www.un.org/Depts/los/convention_agreements/texts/unclos/closindx.htm (Accessed on 14/01/2007)

UN Resolution 986 (1995) Oil for Food http://daccessdds.un.org/doc/UNDOC/GEN/N95/109/88/PDF/N9510988.pdf?OpenElement (Accessed on 14/01/2007)

Electronic Sources

Iraq Pipeline Watch Attacks on Iraqi pipelines, oil installations, and oil personnel. IAGS Energy Security
http://www.iags.org/iraqpipelinewatch.htm (Accessed on 11/10/2006)

Joint Petroleum Activities in Turkey. TPAO
http://www.tpao.gov.tr/rprte2/JOINT.HTM (Accessed on 12/04/2006)

Natural Gas in Turkey. IGDAS
http://www.igdas.com.tr/eng/index_w.asp?link=trk (Accessed on 01/03/2006)

TPAO History. TPAO
http://www.tpao.gov.tr/winter2005/bg/sub/history.htm (Accessed on 16/05/2006)