Turkey's Energy Policy in the Next Decade

Prof. Dr. Nadir Devlet *

Abstract

The main subject of the article is the present and future energy policies of Turkey. The author analyses the energy policies of Turkey in terms of oil, natural gas, electric power, coal and other energy resources. These detailed analyses are presented within a comparative framework, which includes all the political actors and the energy resources in Eurasia. The author also studies the pipeline and other energy resource transportation projects in Turkey and Eurasia in the next decade. Finally the author reviews some problematic political issues in the area.

Turkey's strategic location makes it a natural "Energy Bridge" between the major oil producing areas in the Middle East and Caspian Sea regions on the one hand, and consumer markets in Europe on the other. Turkey's port of Ceyhan is an important outlet both for current Iraqi oil exports as well as for potential future Caspian oil exports. Turkey's Bosporus Straits are a major shipping "choke point" between the Black and Mediterranean Seas. Finally, Turkey is a rapidly growing energy consumer in its own right.

Prior to Turkey's severe economic difficulties in 2001 (as well as a major earthquake in August 1999), the country's energy consumption had been growing much faster than its production. Assuming that the Turkish economy and demand for energy return to a rapid growth path (in November 2003, Turkey released a forecast anticipating energy demand growth of 96% by 2010). On 5 April 2001, Turkey announced that it had ratified the Energy Charter Treaty, the international legal framework for energy investment. [1]

Oil

In general, Turkish oil consumption has increased in recent years, although

* Prof. Dr. Nadir Devlet is the Head of History Department at Yeditepe University, İstanbul.

[1] http:www.eia.doe.gov/emeu/cabs/turkey.html, p. 2

the country's recent economic recession plus price deregulation measures (which have raised the price of many oil products) since June 1999 appear to have interrupted this trend for the time being. Oil provides over 40% of Turkey's total energy requirements, but its share is declining (as the share of natural gas rises). Around 90% of Turkey's oil supplies are imported, mainly from the Middle East (Saudi Arabia, Iran, Iraq and Syria) and Russia. Turkey's port of Ceyhan is a major outlet for Iraqi oil exports, with optimal pipeline capacity from Iraq of approx.1.5-1.6 million bbl/d, but oil flows have been sporadic since late March 2003, following the outbreak of the Iraq war. On March 8, 2004, Iraq issued a tender for Kirkuk oils via the Turkish port of Ceyhan, the first such sale from Iraq's northern oil fields in a year.

Primarily three companies - the Turkish State Petroleum Company (TPAO), and foreign operators Royal Dutch/Shell (Shell) and Exxon Mobil, account for Turkey's oil production. TPAO alone accounts for about 80% of the country's total oil output (currently around 49,000 bbl/d, down from 90,000 bbl/d in 1991). Turkish oil fields are generally small, and scattered around the country. Potential oil reserves in the Aegean Sea have not been explored due to conflicting Greek claims over the area.

In December 2003, a petroleum market reform bill was passed by Turkey's parliament. Tüpraş (Turkish Petroleum Refineries Corporation) and POAS (Petrol Ofisi, Turkey's major petroleum product retailer) are to be privatised. In February 2003, the Turkish government initiated a legal challenge to a proposed merger between POAS and IS Doğan Petrol Yatırımları AŞ. In early 2004, the government approved the sale of a 66% stake in Tüpraş for $1.3 billion to a group led by Russia's Tatneft (and its German subsidiary, Efremov Kautschuk), but some juridical problems stopped this deal.[2]

Pipelines

Oil and gas transportation is a crucial and contentious issue in the Caspian Sea/Central Asia regions. Turkey and the United States have pushed for a "Western route" pipeline that will carry oil from Azerbaijan's port of Baku through Azerbaijan and Georgia and then across Turkey to Ceyhan. The planned 1-million-bbl/d capacity, Baku-Tbilisi-Ceyhan (BTC) "Main Export Pipeline" will stretch approximately 1,038 miles (281 miles through Azerbaijan, 135 miles through Georgia, and 622 miles through Turkey) and is expected to cost $2.8-$2.9 billion to construct. Completion of BTC currently is expected sometime in 2005.

Russia, on the other hand, has promoted a "Northern route" across the

[2]ibid., p.3

Caucasus to the Russian Black Sea port of Novorossiisk.

To help resolve these problems, a number of Bosporus bypass options are under consideration or being developed in southeastern Europe and in Turkey itself. Within Turkey, one possibility is a 1-million-bbl/d, $500 million line running from the Black Sea coast north of Istanbul to the Aegean Sea near the border with Greece; a consortium known as Thrace Development has put this idea forward. Another proposal is a 1-million-bbl/d line from the Black Sea port of Samsun in northeastern Turkey to Ceyhan. Also, in January 1997, Bulgaria, Greece, and Russia agreed on a plan to build an oil pipeline linking the Bulgarian Black Sea port of Burgas with Alexandroupolis on the Mediterranean coast of Greece. As originally conceived, the proposed 178-mile, underground pipeline would allow Russia to export oil via the Black Sea while bypassing the Bosporus.

In addition to looking at bypasses to the Bosporus, Turkey has also been attempting to increase capacity in the straits. To increase safety and improve traffic flow in the Bosporus, Turkey has constructed a $45 million radar-controlled Vessel

Table I: Bosphorus bypass Proposals[3]

Countries	**Route**	**Pipeline (km)**	**Capacity** mt/y(b/d)	**Possible tariff** per tonne $	**Comment**
Ukraine-Poland	Odessa-Brody-Plock	644+500	25/500.000	14.5	500 km has not been built
Russia-Hungary-Croatia	Druzhba-Szazhalombatta-Adria/Omisalj	3,197	5/100.00 (15/300.000)	?	Druzhba-Szazhalombatta exists
Romania-Serbia-Croatia-Italy	Constanza-Pancevo-Trieste (Omisalj)	1,310 1,238	?	7.3 or 15.5	Under study
Bulgaria-Macedonia-Albania	Bourgas-Vlore	913	37.5/750.000	9.50	Cost $ 850m-$1.2bn
Bulgaria-Greece	Bourgas-Alexandroupolis	286	30-40/ 600-800.000	5	Cost$ 600-700m
Turkey	İbrikbaba-Kıyıköy	198	1.2 mb/d	4.51	
Turkey	Samsun-Kırıkkale-Ceyhan	660	50/ 1.000.000	10	Cost $ 1,060
Turkey	Ağva-İzmit refinery	40	b	?	Tatneft proposal

[3]John Roberts, "The Turkish Gate. Energy Transit and Security Issues", EU-Turkey Working Papers, No. 11, (October 2004), pp. 20-22.

Traffic and Management System, with ships monitored from a facility similar to an airport traffic control centre.[4]

Refining/Downstream

Turkey has refining capacity of 802,275 bbl/d at 7 refineries. Refining and other downstream operations in Turkey are dominated by the partly-state-owned company Tüpraş, which has four main refining complexes: Batman in the southeast, Aliağa near İzmir, İzmit near Istanbul (the country's largest refinery, damaged during the August 1999 earthquake), and the Central Anatolian Refinery at Kırıkkale near Ankara. In 2002, Tüpraş's share of the Turkish fuels and lubricants market was around 78%. In July 2002, Turkey's government announced that it would sell its 25.8% share in POAS to the majority shareholder, Is Doğan Petrol Yatırımları AŞ.

Natural Gas

Although the geographic location of Turkey places it in a "difficult" part of the world, one positive aspect is its close location to many actual or potential gas suppliers. Turkey is diversifying its sources of gas through the construction of new pipelines from Azerbaijan, Turkmenistan and Iran, and a new route from Russia (Blue Stream) and prospectively offers an alternative path for gas from the Middle East and Central Asia into the major West European markets - a so called Eurasia Energy Corridor.

The gas sector in Turkeyis not as developed as the electricity sector but there are a number of common features. Chief among these is that government owned entities have dominated the sector and that substantial reform is now in prospect that will liberalise and partially privatise the sector. A key element of the reform is a requirement for a phased divestment of import contracts by the current monopoly importer, BOTAS.

The financial performance of BOTAS in 2000 was a profit of about USD 120 million, significantly less than the profit of slightly over USD 400 million in 1998 and just under USD 500 million in 1999. One reason for the poor performance is late payment for gas by TEAS and electricity BOT companies, which is in turn related to the poor performance of the electricity sector. A second reason is the fall in demand occasioned by the 2000-01 economic crisis.[5]

[4]John Roberts, "The Turkish Gate. Energy Transit and Security Issues", EU-Turkey Working Papers, No. 11, (October 2004), pp. 20-22.
[5] ibid., p. 43.

Turkey consumed 621 billion cubic feet (Bcf) of natural gas (nearly all imported) in 2002, up from 150 Bcf consumed in 1991. In 2003, the Turkish power sector accounted for about 65% of total Turkish gas demand. Turkey already has

Table II: Existing BOTAS gas import contracts[6]

Source	Start Date	Peak Volume (Billion m_)	Duration (Years)
Russia – Batı (West)	Effective – 1987	6	25
Algeria (LNG)	Effective – 1988	4	20
Nigeria (LNG)	Effective – 1999	1.2	22
Russia – Black Sea	Effective -2003	16	25
Iran	2001	10	25
Russia	Effective-1998	8	23
Turkmenistan	2005	16*	30
Azerbaijan	2005	6.6	15
*Turkmenistan	2005	14 (to Europe)	

signed contracts for far more natural gas than it is expected to need. To date, Turkey has signed deals for around 1.8 Tcf per year of natural gas imports in 2010, more than 25% above the BOTAS forecast for Turkish gas consumption (1.4 Tcf) in that year. Of this total, over 25% is already coming from Russia via Bulgaria (the "Progress Pipeline"), 11% from Iran, and 11% from Algeria and Nigeria combined in the form of liquefied natural gas (LNG).

By 2010, over 30% of Turkey's gas imports are to be supplied from Russia via the Black Sea (see "Blue Stream" below), more than 25% from Russia via Bulgaria, nearly 20% from Iran, about 13% from Azerbaijan, and the remainder from Algeria and Nigeria. Turkish energy officials have discussed the possibility of storing surplus natural gas in underwater depots beneath the Sea of Marmara or under the Salt Lake (Tuz Gölü) in central Anatolia.

The United States, among others, has been encouraging Turkey to utilise its unique geographical position to become a major transit centre for natural gas from the Caspian/Central Asia region to Europe. At the same time, however, Turkey's reliance on Russia for gas imports could reach 70% or higher, seemingly undercutting Turkey's goal of diversifying its fuel suppliers.

[6] OECD Reviews of Regulatory Reform. Regulatory Reform in Turkey, Paris, OECD, 2002, p 42

"Blue Stream" Pipeline and Other Deals

In October 2002, a twin 866-mile natural gas pipeline running from Russia under the Black Sea to Turkey was completed, with natural gas flows starting in February 2003, about one year behind the original schedule. The $3.2 billion "Blue Stream" pipeline runs from Izobilnoye in southern Russia, to Dzhugba on the Black Sea, then under the Black Sea for about 247 miles to the Turkish port of Samsun, and on to Ankara.

In 21 May 1999, Turkey's state natural gas and pipeline company BOTAS signed an agreement on building a $2-$2.4 billion, 1,050-mile, gas pipeline from Turkmenistan, underneath the Caspian Sea, across Azerbaijan and Georgia (both of which would collect transit fees), and on to Turkey.

Exports of Iranian natural gas to Turkey were expected to reach 350 Bcf per year by 2007. 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. If Turkish demand does not support the level of natural gas imports for which it has contracted, Turkey could become an important transit centre for natural gas exports to Greece and beyond.

Azerbaijan and Turkey signed a long-term natural gas purchase and supply contract in 12 March 2001 (granted final approval on the Turkish side in February 2003). Starting in 2006, two years later than the original target date, Azerbaijan is to deliver 70 Bcf of natural gas to Turkey.

Egypt, with huge gas reserves of its own, represents yet another possible source of gas for Turkey, either by pipeline or via LNG tanker.[7]

Coal

Turkey has hard coal (anthracite and bituminous) reserves of around 1.1 billion short tons, plus lignite reserves around 8 billion short tons. Around 40% of Turkey's lignite is located in the Afşin-Elbistan basin of southeastern Anatolia, while hard coal is mined only in one location – Zonguldak.

Electric Power

In 2004, Turkey had electric power generating capacity of around 32,000

[7] ibid., pp.5-8.

Table III: Production of General Directorate of Turkish Coal[8] (1990-2003)

Production years	Staff	Decapping Thousand m^3	Production Thousand tons	Sales Thousand tons		
				For thermo-dynamic plants	Others	Total
1990	32.286	176.601	36.859	28.056	10.138	38.194
1991	30.468	153.779	38.243	29.485	9.492	38.977
1992	29.633	166.777	42.395	32.963	9.696	42.659
1993	27.977	189.970	38.688	29.905	8.754	38.659
1994	26.298	197.023	43.284	36.357	6.265	42.622
1995	22.527	165.504	33.421	25.339	7.055	32.394
1996	21.427	175.403	34.238	26.816	7.818	34.634
1997	20.450	192.162	36.731	30.813	6.872	37.685
1998	19.638	207.809	38.315	31.719	6.168	37.887
1999	19.150	242.128	38.644	33.437	4.805	38.242
2000	17.408	217.123	39.198	33.478	5.831	39.310
2001	16.362	211.543	33.609	28.910	4.834	33.744
2002	14.645	181.349	30.661	25.323	5.541	30.864
2003	12.986	173.175	25.685	18.990	6.407	25.397

megawatts (MW), and was building 13,000 MW more. Turkey's Electricity Generating and Transmission Corporation (TEAS), a public company that owns and operates 15 thermal and 30 hydroelectric plants generating 91% of Turkey's electricity, had indicated that rapid growth in electricity consumption would continue over the next 15 years. In February 2001, Turkey passed the long-anticipated Electricity Market Law, which paved the way for a free market in power generation and distribution in the country. In February 2004, Germany's STEAG, a subsidiary of RAG, announced that it had completed construction on a $1.5 billion, 1,210-MW, coal-fired power plant near İskenderun, in southern Turkey. The plant, which represents the largest foreign direct investment ever by a German company in Turkey, is expected to burn 3.3 million metric tons of imported coal per year. 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. In December 2003, for instance, Turkey began importing 300 million kilowatt hours (kwh) per year of power from Turkmenistan (via Iran), with plans to double this to 600

[8] http://www.tki.gov.tr/faaliyet_2003.pdf

million kwh. In February 2004, Turkey again stated that it would stop purchases of power from Bulgaria, this time, reportedly, due to Bulgaria's failure to grant highway and dam contracts to Turkish contractors as provided for in a bilateral power trade agreement. Besides Bulgaria and Turkmenistan, Turkey also imports power from Russia (via Georgia) and Iran. Turkey has significant hydroelectric power resources (more than 104 total plants, installed capacity over 10.2 GW), and is developing a great deal more, especially as part of the $32 billion Southeast Anatolia-GAP-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: Atatürk (2,400 MW capacity); Karakaya (1,800 MW); Ilısu (1,200 MW; the largest hydro project on the Tigris River, but highly controversial due to environmental concerns); Cizre (240 MW); Silvan/Kayser (240 MW); Hakkari (208 MW); Alpaslan II (200 MW); Batman (198 MW); Konaktepe (180 MW); and Karkamış (180 MW).[9]

Demand forecasts prepared by the Ministry of Energy and Natural Resources (MENR), prior to the present economic demands; project a need for around 60 GW of capacity by 2010 and 105GW by 2020. This represents compound growth of 8% per annum for the first decade and 7% per annum for the second,

Table IV: Installed Capacity in Turkey (GW)[10]

Years	Thermal power	Hydropower	Nuclear	Total
1970	1.509	0.725	0	2.234
1975	2.407	1.799	0	4.186
1980	2.987	2.130	0	5.118
1985	5.244	3.874	0	9.119
1990	9.550	6.764	0	16.315
1995	11.086	9.864	0	20.951
2000	17.875	12.281	0	30.156
2010	38.921	25.836	2.000	66.757

which would essentially continue the growth rates seen over the last two decades. After the crisis, it is reasonable to expect strong electricity demand growth on the back of resumed economic growth and further increases in per capita electricity usage. However, there is a range of views about just how strong such growth is likely to be in future and consequential differences of view about the extent of the

[9] ibid., pp.8-10.

[10] http://www.bsrec.bg/turkey/turkey_view.html

infrastructure investment that is necessary. On this point, the IEA concluded that, "The experience of other countries offers reason to doubt whether the anticipated high growth rates would be sustained over such a long period" (see IEA, 2001). Other Turkish authorities that have had a role in planning and implementing Turkey's electricity sector have shared this view and consequently all of the MENR's investment plans have not been realised – this is discussed in detail below. The net result has been what might be called a "stop/go" microeconomic policy outcome in this sector. Whatever the respective merits of different demand projections, it is clear that Turkey will need substantial new investment in the sector over the medium term. On average, Turkey will need to build the equivalent of several new large thermal power plants each year involving investment of several billion USD per year.[11]

Energy crisis or looking for new alternatives

Turkey is using as energy resources mainly oil, natural gas and coal. In 1990 local production had covered 47.7% of energy consumption, in 2000 this percentage dropped to 33% and in 2023 it is calculated that it will drop to 23.6%. Turkey will need to export 75% of its energy.[12] Therefore she must look to new alternatives. Turkey is considered to have a large amount of wind, geothermal, and solar power potential. Mainly used for rooftop hot water, geothermal energy potential is estimated at around 35 GW. In March 2004, the World Bank granted Turkey a $200 million Energy Reform Loan to encourage the use of renewable energy in the country.[13]

As we know Turkey has almost 63% of world reserves of mineral boron. If Turkey receives the technology, it could also be used in the energy sector.[14] To produce energy from boron fusion, or boron batteries is at the present time, rather complicated. Turkey has other alternative resources such as solar, wind and hydraulic energies. Because of climatic conditions, Turkey is one of the most suitable countries for the production of sun energy. The Marmara, Aegean and Mediterranean coasts are ideal for wind energy. Today there are only three wind centres. On the other hand, Turkey is using her river potential and there are 129 hydroelectric powerhouses. But Turkey is using only 30% of this capacity. According to geothermal energy resources, Turkey is 7th in the world and annual production is 4500 MW. Today 105 wells are in operation. If we consider that

[11] OECD Reviews of Regulatory Reform. Regulatory Reform in Turkey, Paris, OECD, 2002, p 11.

[12] Yıldırım Pehlivan, "Bor, Toryum, Neptunyum Gerçeği ve Türkiye'deki Enerji Sorununa Kısa Bir Bakış", Aydınlanma 1923, (2003), p.47.

[13] http:www.eia.doe.gov/emeu/cabs/turkey.html, p. 10.

[14] ibid., p. 45.,

Turkey is surrounded by three seas, another energy resource could be wave power. Certainly there are other alternatives, such as biological recycling or to find a way to use hydrogen as a fuel.[15] The installed capacity or renewable energy in 1996 was 15 MW and it is expected to be increased to 100 MW and to 600 MW by 2010.[16]

Nuclear Power

Nuclear power plants generated electricity in 30 countries in 2000. A total of 438 nuclear power plants were in operation around the world, including 104 in the United States, 59 in France, and 53 in Japan. The country with the largest share of electricity generated by nuclear power was France, at 76 percent. Belgium, Bulgaria, Hungary, Lithuania, Slovakia, South Korea, and Ukraine depend on nuclear power for at least 40 percent of their electricity generation. Nuclear power accounted for 16% of the world's total electricity supply in 1999. That share is projected to fall to 12% by 2020.[17]

From near and far, Turkey's neighbours; Bulgaria, Armenia, Ukraine and the Russian Federation have their own nuclear power stations and the Islamic Republic of Iran is building with Russian technology two, and Romania one nuclear power reactor. Turkey is also planning to build a nuclear plant in the near future, in order to multiply its energy resources. But Turkey will need more plants than just one.

Turkey as Transit Corridor for Energy

Turkey geographically close to countries or regions' possesses some 71 % of the world's proven gas reserves and some 72 % of the world's proven oil reserves. But such figures are somewhat misleading, essentially for two reasons. Firstly, gas is a very different commodity compared to oil; secondly, some producers, notably Russia, have comparatively little interest in utilising Turkey as a transit country. In this context, the most relevant element might be that 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.

According to the BP Statistical Review of World Energy, June 2003, there is no doubt that oil pipelines across Turkey do play, and will play, a major role in

[15] ibid., p. 47.
[16] http://www.bsrec.bg/turkey/turkey_view.html
[17] "Nuclear Power", International Energy Outlook 2002, Energy Information Administration, 2002, p. 91

the global energy market but their role can best be defined as useful and important rather than vital. Oil is essentially a fungible commodity; it is more flexibly transported than gas (notably by sea) and Turkey's role in this context is one that concerns the global energy supply system rather than that of the European Union alone. Gas, however, is a different matter: it is more complex and, in a strictly EU context, Turkey's role, both current and potential, is much greater.[18]

Gas Transit Issues

The European Union is already the world's biggest gas import market while it is also one of the world's fastest-growing energy markets. The EU is already in receipt of large volumes of gas from three main sources - Russia, the North Sea and North Africa - Turkey's goal is to become Europe's fourth main artery.

The EU's Gas Balance to 2030

The European Union is already looking to Turkey as a potential import route, while Turkey is very much looking to the EU as a market for gas transiting through Turkey. This relationship is driven by Europe's prospective demand for gas imports and the availability of supplies to meet much of this demand in countries adjacent or close to Turkey. The International Energy Agency (IEA) estimates that the EU's primary gas demand is expected to grow by 2.9% per year from 2000 to 2010 and by 1.6% from 2010 to 2030.[19]

Because Russia has its own direct pipeline systems serving the EU market, it is not particularly interested in routes through Turkey, which it is likely to view in an essentially competitive context, even though the EU might argue that routes through Turkey are intended to complement, rather than compete with, Russian pipeline supplies. But Turkey is located close to a number of other gas producers, which have had, or may have, an interest in assessing the prospect of accessing European markets by means of pipelines through Turkey. Countries currently studying prospects for delivery of their gas through Europe include Azerbaijan, Kazakhstan, Iran, and Egypt.[20]

Pipeline is the more normal transportation method for gas but LNG offers an increasingly competitive alternative particularly over distances of 3,000 km or more. Although it requires provision of expensive liquefaction plants, to convert the gas to liquid form so that it can be transported by sea, and the availability of

[18]John Roberts, "The Turkish Gate. Energy Transit and Security Issues", EU-Turkey Working Papers, No. 11,(October 2004),pp. 1-2.
[19]Ibid., p. 2.
[20]Ibid., p. 4.

Table V: Reserve estimates for Turkey's gas-producing neighbours (in trillions of cubic meters – tcm)

Caspian/Central Asia	6.57
Azerbaijan	0.85
Kazakhstan	1.84
Turkmenistan	2.01
Uzbekistan	1.87
Middle East	47.11
Iran	23.00
Iraq	3.11
Qatar	14.40
Saudi Arabia	6.36
Syria	0.24
Northeast Africa	1.66
Egypt	1.66
Russia	47.57
World	155.78

Source: BP, Statistical Review of World Energy, London, June 2003.[21]

purpose-built tankers, in some cases it may even prove competitive with pipelines at distances of 1,000 km. Recently constructed Egypt-Jordan gas line (now being extended to Syria and Lebanon) could be extended into Southern Turkey. The prospect of major Gulf exports to Europe via Turkey is very much a second stage prospect. Iran furnishes an obvious exception to this in that it is actively seeking to export gas to the EU via Turkey. But whether its neighbours on the Arab side of the Gulf will follow suit will depend very much on the initial success of such projects as the Turkey-Greece gas line and the Nabucco project.

Whether Turkey can become the EU's 'fourth artery' very much depends on the completion or implementation of various projects designed to bring gas to Turkey, to transport it from Turkey, and to increase Turkey's own throughput capacity. This is certainly Turkey's goal and, indeed Turkey already has one major important pipeline which might, in time, be used to ferry gas to European markets beyond Turkey itself: the 20 bcm/y capacity Tabriz-Erzurum pipeline which opened in December 2001 and which now carries Iranian gas to Ankara and other parts of Turkey. In addition, in conjunction with BP, Statoil and other developers of Azerbaijan's giant Shakh Deniz field, it is committed to building the $1bn South Caucasus Gas Pipeline from Baku to a connection with its own East-West Main Trunk Pipeline at Erzurum. The Baku-Erzurum line will initially have a capacity of

[21]Ibid., p. 4.

around 7-8 bcm/y but is designed for expansion up to at least 16 bcm/y. But Turkey's ability to import gas from its neighbours, particularly with regard to subsequent transit of that gas to markets in Europe, is not limited to Iran and Azerbaijan alone.[22]

Potential Eurasian gas suppliers to the EU market (by pipeline)

The Athens Memorandum

In recognition of potential gains from increased energy trade, and as part of a wider movement to deeper regional integration within the region, and between

Table VI: Supply potential as of 2010

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

* SCP system under construction, due to open 2006.
* * Egypt-Jordan gasline has reached Syrian border.[23]

Table VII: Additional supply potential post-2015

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

* This would be additional to the 10-12 bcm potential deliveries before 2015.

** Turkmenistan's Caspian shore gas fields are already linked into the Iranian network via the 12 bcm/y capacity line from Korpedzhe to Kurt-Köy, but there are no significant connections to Iran from Turkmenistan's main central and southeastern gas fields.[24]

[22]Ibid., p. 5.
[23]Ibid., p. 6.
[24]Ibid., p. 6.

Table VIII: Potential gas pipelines from Turkey to (other) EU countries[25]

Route	Initial	LT capacity	Comments
Turkey- Greece	0.75bcm	3-11 bcm	Due to open 2006
Greece- Italy Interconnector	22 bcm	22 bcm	Under study. Possible opening 2008
Turkey-Austria (Nabucco)	3-5 bcm	20-25 bcm	Under study. Possible opening 2009
Greece-Western Balkans-Austria	??	10-20 bcm??	Preliminary proposal

Source: IEA, Methinks.

the region and the EU, the governments of Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia, Greece, Kosovo, Romania, Turkey, and Serbia and Montenegro signed the "Athens Memorandum – 2002" whereby they agreed to develop a South East Europe Regional Electricity Market (SEEREM). The 2003 revision of the Athens Memorandum also includes provisions relating to gas market development.[26]

It may be the case that Turkey is prepared to sell gas to SEE at a price below the current Gazprom price. This will depend on Turkish contractual obligations for off-take of Russian and Caspian gas, the price of Caspian gas at the Turkish border, costs of transporting gas across Turkey and SEE, and gas prices in Western Europe. In recognition of the potential for Turkish gas exports to SEE and into Western Europe, a project to construct a new Greece-Turkey gas pipeline has been developed. In conjunction with the Greece-Turkey pipeline, Albania, Bosnia and Herzegovina, Macedonia, Greece, Serbia and Turkey signed an interconnection agreement in February 2003, whereby there was agreement to explore options for exporting gas from Turkey via Greece to the other signatory countries.[27]

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Two alternative routes would be consistent both with the interconnection agreement and the desire of Turkey to export gas to the Western Europe market. One route would feed off a possible Greece-Italy pipeline, going north from Greece,

[25]Ibid., p. 6.
[26]David Kennedy- John Besant-Jones, "World Bank Framework for Development of Regional Trade in South East Europe", Energy and Mining Sector Board Discussion Paper, No. 12 (March 2004), pp. 12-13.
[27] Ibid, p. 19.

through Albania, to Macedonia, and north through Serbia, connecting with the existing Serbian network (the Italian route). An alternative route would go north from Greece to Macedonia and to Serbia, with a branch from Macedonia to Albania (the northern route).

The mid case price approximates to what would be paid under current Turkish off-take agreements for an oil price of $25/barrel. The capital cost for the two routes was assumed to be of the order $300 million. It is worth noting that the average price on the EU15 border is around $120/tcm for an oil price of $25/barrel. Netting back, if Turkey is to penetrate the western European market, the price at the Turkish border would have to be somewhere between the low and mid price forecasts. [28]

Scenario I. (Positive)

At the moment the energy partners of Turkey are Russia, Bulgaria, Iraq, Iran, Algeria, Nigeria and in the next year or so Azerbaijan will be added to the partnership. Turkey is planning also to cooperate with Turkmenistan, Kazakhstan, Uzbekistan and Egypt on energy issues. With some of these countries agreement has already been accomplished. Oil is imported mainly from the Middle East and Russia. This year the BTC pipeline will bring the Azeri oil to Turkey. The existing Iraq-Ceyhan pipeline is also a source for Turkey. Turkey makes money also from transportation fees. Gas is imported mainly from Russia via Bulgaria (Progress line) and Blue Steam line running from Russia under the Black Sea to Samsun. Also app. 10 percent of gas is imported from Algeria and Nigeria in LNG form. Another source is Iran and gas is coming through the Tabriz-Erzurum line to Turkey. In short another new gas pipeline Baku-Tbilisi-Erzurum will start to bring gas from Azerbaijan to Turkey. In another words Turkey will posses more gas than her consumption. The surplus gas is planned to be exported to the EU, which has a huge demand on energy. Primarily, the Greece connection could bring gas to South East Europe countries. Russia the main gas importer to Turkey will not be happy with such a development, but she cannot provide all the European countries needs through one or two pipelines. In other words Turkey could become the fourth gas provider to the EU.

On the other hand, this transit route will provide an opportunity for Azerbaijan, Turkmenistan and even Uzbekistan to import their natural gas to Europe. Certainly these countries have another alternative, which is energy

[28] Ibid, p. 37.

hungry China. Plans to build Turkmenistan-China, Iran-China gas pipelines and Kazakhstan-China crude oil pipelines are underway. Whether these countries will be able to provide both markets with energy should be considered. If they have many customers, they will be able to sell their energy for a better price. For example Turkmenistan, because of a single connection, does not receive the world market price for its gas.

Turkey could also be a transit country for Middle East countries, which have the same amount of gas reserves as Russia and Central Asian countries. In short, when in a decade these proposals come about; Turkey could become a very important transit country for the Caspian Region and Middle East. This role will raise the strategic and economic importance of Turkey. Certainly for such proposals to happen, we need political or economic stability for several decades in the region.

Scenario II. (Negative)

If we look at both neighbouring regions of the Caucasus and Middle East, there are many areas, such as Palestine, Iraq and Afghanistan that are exploding or ready to explode. On going civil war in Iraq and friction between the Iraqi people is one of the main concerns of Turkey's rulers. Nobody knows how the disturbance, terror, disobedience to the new Iraqi government, and the role of the US and its allies will end in the country. The best scenario is that Iraq becomes a democratic country and the Iraqi people will preserve their dignity under this new regime. But Pandora's box has been opened; every religious or ethnic group has started to fight for its demands.

a. Kurdish Question

Turkey's main concern is the future of Iraqi Kurds and Turkmens. Certainly the political stability in the country and neighbouring countries is very important for Turkey. But we know that Kurds in Northern Iraq have de facto created their own state. Even it has not yet been recognised by other states, the recognition could happen any moment. For example Washington recognised Macedonia on November 2004, even when its ally Greece, was against such recognition; the Kurdish state could be also be recognised. The Kurdish leaders Barzani and Talebani who sometimes visit Turkey, reject the claim that they are seeking independence. Turkish suspicion is still on the agenda because of their secret support to the Kurdistan Workers Party PKK/Kongra Gel guerillas.

Turkish newspapers reported at the end of October and beginning of November 2004, that the Turkish government had formulated a contingency plan that would place at east 20,000 Turkish troops inside northern Iraq in an effort to prevent leaders from changing the demographic structure of the highly contested city of Kirkuk. The plan ostensibly calls for the re-entry of Turkish forces into northern Iraq to rout out Turkish-Kurdish militants from the PKK and also calls for Turkish troops to prevent Iraqi Kurdish migration to Kirkuk. The city has a large Turkmen (ethnic Turkish) population, and vast oil reserves.[29] Subsequently, the Turkish General staff refuted these newspaper reports. However, we know that in the past, the Turkish army has intervened several times in Northern Iraq.

At the moment there are no major terrorist activities, but PKK activities have not stopped. During the last months of 2004, there were several attacks in Bingöl, Hakkari, Tunceli, Siirt, Batman, Şırnak involving military personnel and civilians. More than 20 people were killed and there were many injuries because of these terror attacks or land mines.[30]

In other words if the terror continues in the future, the transportation of Middle East energy to Turkey could stop. This then raises the question of whether Turkey will seek a military solution to the terrorist problem rather than accepting the cessation of energy transportation.

b. Problems in the Caucasus

In the Caucasus there are serious problems between neighbouring countries, which need immediate solutions. Armenia has occupied some 305 of the territory of Azerbaijan. In Georgia two autonomous republics, namely Southern Ossetia and Abkhazia declared their secession from the centre and are receiving Russian support. Georgia also has problems with its Armenian minority. Armenians of Meskhetia (or Javahatti) are asking for more rights. Turkish- Armenian friction has historical roots. The Turkish side suggests resolving "genocide" claims with the contribution of independent historians. The Armenian side insists on a political solution.

In the North Caucasus, which has six republics and belongs to the Russian Federation, there are serious political problems. In particular, Chechen guerrillas are causing serious problems with their terror attacks. Also in Dagistan, peace is in danger. President Vladimir Putin's attempt to find a solution with a new Chechen

[29] Kathleen Ridolfo, "Turkey Makes Plans for Iraq", RFE/RL NEWSLINE , Vol. 8, No. 208, Part III, (3 November 2004).
[30] Turkish newspapers, (August-October 2004)

leadership has been unsuccessful. For the time being there will not be much security and stability in the region. Such a situation also has a positive side for Russian policy. Moscow can act as mediator and gain more power in the region. But security in the Caucasus is going to be a serious problem over the next decade. For Turkey, stability in the Southern Caucasus is very important because of the BTC pipeline.

c. Future of Iran

The political, social, ethnic and military development in Iran is also very important for Turkey. If ethnic disturbances occur, or a US military intervention in Iran, similar to that of Iraq occurred, civil war could result and endanger the production of gas and oil. If in Iran, the Azeris invited the Turkish army to support their cause, the outcome is impossible to predict.. Turkish involvement in Iranian military matters would disturb the status quo existing from 1639 between the two countries. Such an intervention could bring enormous insecurity to the region.

It is now clear that the Islamic Republic of Iran has been operating a string of secret nuclear sites in violation of the Nuclear Non-proliferation Treaty (NPT). An IAEA team of inspectors arrived in Iran on 27 March 2004.[31] When the result of the inspections will be published is not clear.

Iranian officials categorically deny any interest in or possession of WMD. Israel, the United States, and other countries believe, however, that Iran has a large stockpile of CW and BW as well as an active programme to manufacture nuclear explosives.[32] Despite these basic differences, these two Muslim, non-Arab Middle Eastern states have established good relations and avoided any serious military confrontation. Furthermore, Iran greatly appreciated Turkey's refusal to allow American troops to use its military bases to attack Iraq in the 2003 war. Still, a Turkish military threat to Iran cannot be ruled out. Ankara features in Tehran's national security calculus.[33]

d. Competition with Russia

The competition with Russia in transporting Caspian energy resources to

[31] "Nuclear Inspectors Headed to Iran", RFE/RL NEWSLINE, Vol. 8, No. 57, Part III, (26 March 2004).
[32] Nadir Devlet, "Crisis Sources In Caucasus, Central Asia, South And East Asia And Affects On Turkey's Security", Presented at Military Academy in the International symposium on "Crisis perspectives in Turkey, NATO and EU", (27-28 May 2004).
[33] Gawdat Bahgat, "Proliferation of Weapons of Mass Destruction: Iraq and Iran", The Journal of Social, Political and Economic Studies, No. 4, (Winter 2003), pp. 423-449.

Europe could become serious. Russia will try to stop Turkey becoming a transit corridor to the EU. Therefore Russia is reluctant to resolve the question of Caspian Sea status. On the other hand, trade between the two countries is growing. Russia is exporting mainly oil and gas to Turkey. Turkey is more involved in food and the building sector in Russia. Turkey is also proving to be an increasingly popular holiday destination for Russian tourists.

Russian President Vladimir Putin is planning to dissolve all republics and their local parliaments and to appoint governors instead of elected Presidents.[34] Certainly this will generate protest by local people, especially in the Caucasus. Among 21 Russian (autonomous) republics at least seven (or eight to nine) are Turkic and four (five to six) Muslim republics. Every one of these ethnic groups has representation in Turkey. Some are rather influential minorities in Turkey. In other words Putin's decision to curb the rights of these ethnic groups could influence Turkish-Russian relations in a negative manner. Even today, the Russian Interior Ministry is complaining about the involvement of Turkish citizens in the Chechen war. Although they are not large in number, still such involvement disturbs bilateral relations. In the past Turkey was annoyed because of Russian support to the PKK. In other words both sides can scratch each other's sensitive points.

e. Developments in Central Asia

Every Central Asian republic is concerned with common regional problems such as preserving security and combating drug trafficking, and each has its own serious problems. Kazakhstan is not able to control it huge territory, and almost 40% of Russian and other minorities cause friction between Astana and Moscow. For example an explosion on a pipeline in western Kazakhstan carrying gas from Central Asia to Russia triggered a fire that killed three people and injured three, officials said on 2 November 2004. The cause of the blast was not immediately known. Gas supplies via the pipeline were suspended immediately after the blast, authorities said.[35]

What will happen to the country when the absolute ruler of Turkmenistan, Saparmurat Niyazov (Turkmenbashi) dies? One of the poorest and most populated countries, Uzbekistan has problems of poverty, unemployment, young generation and underground radical Islamic movements from in and outside. Tajikistan cannot overcome the negative influences of civil war. Post Soviet countries Georgia,

[34] Rob Caolson, "How Will Russian Governors Be Appointed?", RFE/RL NEWSLINE, Vol. 8, No. 209, Part I, (4 November 2004).
[35](Agencies), Gas pipeline blast kills three in Kazakhstan, 02 November 2004.

Ukraine and at the end of March 2005, Kyrgyzstan are rocked by revolutions. Will they become pluralistic societies? Neighbouring Afghanistan still seeks political, social and economic stability.

Russian and Chinese even Japanese competition in Central Asia for resources could lead to serious conflicts. Chinese immigrants, who legally or illegally infiltrate Siberia or Central Asian countries, are another concern. In short when a serious conflict will occur is not easy to say. But without solving the poverty, unemployment and security questions anything can happen.

Conclusion

Turkey believes in the positive scenario and makes its calculations according to this belief. Certainly becoming a member of the EU will give Turkey a new impetus. But membership is not a must. As a transit country for energy Turkey could profit from it. Countries like Norway, which didn't become members of EU, are also happy. The future membership of Turkey, even with the most optimistic of forecasts, is unlikely to happen in less than ten years. Therefore Turkey is obliged to search for other alternatives. Only one thing is certain, that the EU's population will become much bigger and the demands for energy much greater in the next decade. This will ensure that there is cooperation in the energy sector.