Role of Turkey in the Energy Supply of EU: Costs and Benefits Analysis

Abdulkadir Develi, Selcuk University
Ahmet Ay, Selcuk University
Zeynep Karaçor, Selcuk University

Abstract

EU does not have adequate energy resources when it is compared with its grant amount of energy consumption.. Russia is one of the most important traditional suppliers for the EU and is trying to maintain its position in the future. Russia sometimes use energy as political tools as it seen in example of Ukraine Crises. So, diversification of energy resources of EU will provide more competitive energy supply and it strength energy security of EU. Therefore, EU needs to regional cooperation for energy diversification. Caspian region is energy rich region. Therefore Turkey's strategic location makes it a natural "Energy Bridge" between the major oil producing areas in the Middle East and Caspian Sea. This paper tries to examine costs and benefits analyzing between Turkey and EU aspects of energy cooperation. These costs and benefits analyzing also include projects that are under the construction or still project process. Turkey has some benefits from this process. Because pipelines that provide energy to Europe passes though Turkish boundary and Turkey collect transportation fee from these pipelines and also EU has support these project financially. This is also contains cost for EU.

JEL codes: Q41, Q42 and Q43

1 Introduction

That is eleven September for EU that in 2006, security of European gas supply became a very topical subject following the cuts in Russian supplies to Ukraine in the first days of the year which had the consequence of restricting the availability of supplies to some European countries (Stern, 2006: 3). After that EU tries to diversify its energy resources. Diversifications of energy resources contain same costs and benefits aspects of economy and politics. Moreover, EU has been searching different alternatives like important producers such as Black Sea, Caspian region, Middle East and Gulf regions. Therefore, Turkey is becoming a crucial energy hub to supply needed energy from producer regions and this is strategically important for EU energy security. On the other hand, cooperation on pipeline projects such as Nabucco Project and South European as Ring Project (SERG) is very big opportunity for EU and also for Turkey in terms of strengthening relationship with EU for future member ship of EU (Green Paper, 2006: 1). In terms of EU-Turkey cooperation, the establishment and development of Trans–European (energy) Networks and the promotion of proper interconnection and interoperability of national networks aim to take full advantage of the internal market (European Parliament, 2006: 3). Transportations of gas and petrol from Russia, the Caspian Sea region and the Persian Gulf though from Turkey by ships and tankers contains mutual cost and benefits for EU and Turkey. These cost and benefits can be calculated in terms of political perspective as energy security concept and economic costs and benefits such as pipeline construction and transportation fee aspect of EU and Turkey.

2 General Energy Demand Analysis of EU

The energy dependence of the EU on energy imports will increase steadily in the period from 2010 to 2020. The Union's dependency is growing daily. (Bacık, 2006: 294).

High energy costs, inadequate energy resources and growing energy demand makes EU as one of the most important energy region. European gas demand will rise from presently 540

billion cubic meters (bcm) to around 800 bcm in 2030, rendering Europe the largest gas market in the world. Oil demand will increase, too, from the present 16 million barrels per day (mbd) to 20 mbd in 2030. At the sometime, generic European resources in the North Sea have peaked and will contribute to future European energy supplies only at sharply reduced proportion (Goldthau, 2008: 2).

The Source dependence of OECD Europe will increase from 36% in 2002 to %69 in 2030. The bulk of the supply will be concentrated on Russia 33%, North Africa 27% and The Middle East 17% (Weisser, 2007: 2).

Structural specialties of natural gas and dependency on specific regions and especially to Russia make it more important in terms of security of supply. Ukrainian crises had affected deeply European gas supply. The Ukrainian pipeline system, however, is pivotal in supplying gas to Europe and consequences for Europe's gas supply security were quick to follow: from January 1-3, Gasprom's gas supply to France decreased by 25-30%; supply to Austria decreased by 33%; and Italy received approximately 25% less gas than normal (Spanjer, 2007: 1). However, consumption of natural gas in EU is twice a bigger than petrol; therefore, providing gas security of EU and alternative projects to diversify gas supplies are more important than oil security for EU. EU makes 17% of total world natural gas consumption. It is estimated that petrol dependence of EU will reach 70% by 2030 and natural gas dependence will be 80% about 25 years later. EU has imported its natural demand from specific regions and countries so far. This ratio is 90% of necessary demand.(EU, 2000:19) Energy import of EU depends on specific regions; for example, 40% of gas is imported from Russia and 45 % of petrol is imported from OPEC countries (Morelli, 2006: 9). Natural gas was the fastest growing fuel among the fossil fuels used in the EU, increasing by 2.78% per year between 1990 and 2005 (EU, 2008: 72).

The Middle East and North Africa (MENA) are among the leading countries for energy supply of EU. Although Russian reserves are larger than any single MENA country, many of the latter countries have reserve to production ratios exceeding 100 years, suggesting ample potential for exports. MENA countries have always been seen as a huge potential import resource for European gas markets (Stern, 2006: 3).

On the other hand, EU has to pay huge amount money for energy. The PRIMES model includes a detailed calculation of energy related costs and attributes these costs to the end consuming sectors. Cost analysis includes expenses for purchasing energy products, annuity payments corresponding to investment in end-use equipment, operating expenses and spending to improve energy efficiency (e.g. insulation, etc.). The end-user prices of energy products are also estimated by the model on the basis of a detailed cost analysis of supply, which includes import prices of energy products, extraction costs, distribution costs and annuity payments for investment. The determination of end-use costs takes the view that prices reflect total costs plus profits. The total energy related costs increase by 1.85% per year, during 2005-2030. This growth is lower than the GDP growth, implying that energy costs as a percentage of GDP decrease in the Baseline scenario.

	2000	2005	2010	2020	2030
Total Cost Related to Energy in billion €	978	1080	1219	1516	1709
As % of GDP	9.73	9.87	9.81	9.66	9.15

Table 1: Energy Costs of EU. ***Source;*** *European Commission, 2008 'Directorate-General For and Energy and Transport' Luxembourg: Office for Official Publications of the European Communities.*

As it is understood from table 1 energy costs of EU composed %9-10 of EU in GDP. And EU has imported most of its energy demand and energy costs of EU getting up because of

increasing using natural gas consumption. The main responsible for this increase is the price of natural gas which rises more than the average energy price. The prices of oil products follow the world oil price rise (EU, 2008: 77). Therefore, energy diversification of EU will provide different energy from different producer's countries that will be has effect on more competitive market structure.

3 Role of Turkey in Energy Demand of EU

Turkey has historically been of great geopolitical importance to states in the regions surrounding it as well as to states more remotely (Tekin and Walterowa, 2007: 1). Turkey's strategic location makes it a natural 'Energy Bridge' between the major energy producing areas in the Middle East and Caspian Sea regions (Devlet, 2005: 1). Turkey is strategic region where 71.8% world energy sources crossing (BP, 2005). Turkey is an important link in the East-West energy corridor challenging the Caspian and the Middle Eastern energy to Europe and world markets. The Baku-Tbilisi-Ceyhan and Iraq-Ceyhan oil pipe-lines, Turkmenistan-Turkey-Europe, The Shah Sea, The Black Sea and Turkey- Greece natural gas pipelines would provide the EU with alternative routes for energy supply be used to provide energy security of the EU. Turkey is situated at the meeting point of three continents (Asia, Europe and Africa) and stands as a bridge between Asia and Europe (Demirtaş, 2000: 15).

There are currently four trans-boundary gas pipelines that cross Turkey's borders (Özdemir, 2008); from the west, the Russia-Turkey western pipeline, carrying Russian gas, with a capacity of 14 billion cubic meters (bcm) per year, from the north, the Blue Stream pipeline, carrying Russian gas, with a capacity of 16 bcm per year, from the east, the South Caucasus Pipeline, carrying Azerbaijani gas, with a capacity of 8 bcm per year presently, but upgradable to over 20 bcm, from the east, the Tebriz-Erzurum pipeline, carrying Iranian gas, with a capacity of 20 bcm.

According to Roberts, Turkey's role as a gateway through which gas can enter the European Community is becoming increasingly important as the European Union grapples with the interrelated geopolitical position, many natural gas pipelines have been established and couples of them are still under the projects (Roberts, 2004: 11). But two of these project has more important than other because of their huge potential energy to Europe that is BTC and Nabucco Pipeline projects.

Baku-Tbilisi-Ceyhan (BTC): This project aims at the transportation of crude oil produced in the Caspian Basin, in places such as Azerbaijan and Kazakhstan, by a pipeline to a marine terminal on the Mediterranean coast of Turkey in Ceyhan and then to the world markets by tankers (Babalı, 2005: 30). Within this framework, a major aspect of Turkey's energy strategy is to complete "the East-West Energy Corridor". Total capacity of the 1768 km long pipeline is 50 million tones of oil per year (or 1 million barrels a day) (İpek, 2006: 2). The pipeline will have an approximate length of 1,100 miles (1,770 km) and will cost an estimated $ 3.6 billion. Seventy percent of the project (about $2.6 billion) will be funded by credit. It was initially planned to be completed in 2005, however due to some delays the first oil is expected to flow through it in the second half of 2006 (Babalı, 2005: 46). Role Turkey in this Project is very critical because of providing security of pipeline. Revenue of Turkey for this project per year is 600 million dollars.

Nabucco pipeline project aimed to connect the large gas reserves from the Caspian Sea and the Middle East through Turkey's border to Europe markets. (Unece Gas Centre Report, 2005). The amount of total eligible costs of study will be supported by EC. It is estimated that the project will cost 4.6 billion Euros (The Busness, 2007). When we consider, it is clear that EU separated crucial amount for achieving its own security of supply, the position of Turkey is very important aspect of realization of project. When it is compared with Russia, it is estimated that 30 billion cubic meters of gas will be supplied to Central Europe by the years 2015. The Nabucco project to Europe in 2030 will be provide more energy supply than other energy

routes (North Africa, North Sea and its domestic production) according to statistics from BP in 2006. So that it is estimated that the Nabucco Project will be world's largest natural gas pipeline with its huge potential in 2030

Another alternative energy source of EU will be South European Gas Ring Project (SERG) 'Turkey – Greece – Italy interconnector project' this project aimed to reaching gas to Europe from Caspian and Middle East gas reserves. However, Turkey has key role in this project, too.

Turkish part of the project cost is 135 million euro and it will be financed by %50 by EU and %50 by BOTAS this support that made by EU. Financial economic support will be provided EU for the project. Turkey will have right to take taxes revenue from this project. Length of border is determiner factor for tax revenue. Therefore Turkey will take biggest transportation fee. In this perspective Turkey will have %60 of taxes revenue of pipeline. So it is estimated that Turkey income will be nearly 400-450 billion euro (Çerçi, 2009:17).

Economic and politic costs and benefits of EU-Turkey energy cooperation are as follows;

- It will be provided to easy and safe access to the consumption center in Europe with existing transmission infrastructure and cost-based transportation tariff on transit pipelines.
- Investment of European gas companies on searching, production and creating potential new business opportunities activities in that area will be provided with these Projects.
- Ensuring long-term energy supply of EU has been relieved energy markets and providing price advantage in visible period for EU that pays extremely high amounts to energy.
- Increasing bilateral trade capacity, establishment of economic interdependence and strong political relation between Middle East and Caspian Region will be achievements of these projects.
- Contribution to supply security by creating diversification of supply routes and dependence of consuming countries to particular region will be reduced by these projects.
- Europeans companies will have opportunity to get position in a very fast-growing market like Turkey.
- Turkey has joined the pipeline projects, founded pipeline construction costs and collect transportation fee from these projects.
- Turkey takes the security of these pipelines.
- EU energy partnership with Turkey is strengthening its position in a process of accession to EU.
- Oil tankers passing through the Straits has the environmental risks. Therefore new pipeline project will diminish this risk.
- The EU has been taken the cost of these projects greatly.
- Benefits from Turkey from pipeline transportation with these projects are that security of supply will be ensuring more effectively with partnership to investment to high capacity transportation infrastructure.
- Creation new infrastructure for inaccessible potential suppliers to take additional amount of energy has been expected with these projects.
- Long-term prices down to attract transit transport comes from the acquisition, the existing transmission infrastructure, the unused capacity as possible to evaluate in the future likely to be encountered take-or-pay problems to overcome export facilities establish that Turkey would receive benefits will be.

- Decreasing of prices in long term, collecting transportation fee, evaluation of unused capacity of the existing transmission infrastructure capacity as much as possible, composing exportation opportunity to overcome possible problems of take-or-pay problems in the future are benefits of Turkey.

4 Conclusion

New pipelines construction cost are so much and EU meets most cost of the new pipeline construction such as Nabucco Project. Although high cost of new pipeline construction, EU has been obtain so many advantages from these projects that can provide more competitive energy market structure with these projects. Because Russian energy company GASPROM is absolute monopole in European markets. Energy security is another point of diversification of EU with last Ukrainian crises and it is still hot topic in EU agenda. Absolutely, new pipeline project needs to strong cooperation with boundaries countries. Turkey show itself as energy bridge countries for energy transferring to Europe. EU-Turkey energy cooperation also includes some costs and benefits aspect of Turkey. Turkey attended to some pipeline project directly and meets these projects financially. Moreover, Turkey has to provide securitization of these pipelines. The EU' s financial cooperation instruments should be mobilized in full to promote the restructuring and development of partner countries' energy sector, regional cooperation, infrastructure interconnection, new pipelines, energy efficiency and renewable energy sources for their mutual benefit. Member states need to support the ongoing bilateral and regional energy cooperation financed by EU, the European Investment Bank, the European Bank for Reconstruction and Development and other international financial institution. Because, EU's %8-10 of GDP is energy costs. This value is covered most part EU exportation.

The natural gas projects Turkey is involved in and the liberalization process of our energy market, which gives special importance to energy security, make Turkey a Crucial partner for Europe with regards to energy supply diversification. Therefore new project will open new advantages for FDI. The co-operation projects such as, NABUCCO and SERG will be cause rapid alignment of Turkey with EU energy standards. Turkey has opportunity to develop regulations of Natural Gas market with providing more efficient market and improvement infrastructure services for NABUCCO, SERG and BTC

References

- Bacık, Gökhan, 2006. ‘‘Turkey and Pipeline Politics’’, *Turkish Studies*, Vol. 7, No.2, 293–306, June 2006.
- Babalı, Tuncay, 2005. ‘‘Implications of The Baku–Tbılısı–Ceyhan Maın Oil Pipelıne Project’’, *Perceptions*, Winter
- Brıtısh Petroleum, June 2005. *BP* **Statistical Review of World Energy**. London.
- The Busıness. 2007. Capital of Nabucco, September 20-28, 2007
- Devlet, Nadir, 2005. ‘‘Turkey's Energy Policy in the Next Decade’’, *Perceptions*, Winter 2004–2005
- Demirbaş, Ayhan. 2000 ‘‘Recent Advances in Biomass Conversion Technologies’’, *Science and Technology*, Sayı 6
- İpek, Pınar, 2006. ‘‘ The Aftermath of Bakû–Tbılısı–Ceyhan Pıpeline: Challenges Ahead for Turkey’’*, Perceptions*, Spring 2006
- Özdemir, Sahir, 2001. ‘‘Avrupa Ekonomik Topluluğu, Avrupa Topluluğu, Avrupa Toplulukları, Avrupa Birliği, Roma Anlaşması, Avrupa Tek Senedi, Avrupa Birliği Antlaşması, Maastricht Anlaşması, Amsterdam
- Anlaşması, Nice Anlaşması’’, www.dpt.gov.tr/DocObjects/Download/.../KavramlaraIilskinAN.pdf

- Morelli, Vince L, 2006. ‘‘The European Union’s Energy Security Challenges, Analyst in European Affairs Foreign Affairs’’*, Defense and Trade Division*.
- European Commission 2000. **Green Paper: Towards a European Strategy for the Security of Energy Supply.** COM 769 final. Brussels.
- European Commission, 2008. **Directorate-General For and Energy and Transport’** Luxembourg: Office for Official Publications of the European Communities.
- Tekin, Ali and Walterova, Iva, 2007. ‘‘Turkey’s Geopolitical Role:The Energy Angle’’, *Middle East Policy,* Vol 14, No1 Spring.
- Stern, Jonathan, 2006. **The New Security Environment For European Gas: Worsening Jeopolitics and Increasing Global Competition for LNG,** Oxford Institute for Energy Studies, October 2006
- Unece Gas Center, December 2005. **Report on The Gas Company and Market Structure in The European Part of The Unece Region**, Geneva.
- Roberts, John, 2004. ‘‘The Turkish Gate: Energy Transit and Security Issues’’, *Centre For European Studies, EU–Turkey Working Papers*, No 11.
- Weıner, Myron, 1995. *‘’*Nations: The Problem of Political Developmen’’*, Annuals of American Academy of Political and Social Science,* Vol 358, March 1995.
- BOTAŞ, 2009, http://.botaS.gov.tr/icerik/eng/projeler/yurtdisi.asp. 11.11.2009