

УДК 341.23=111

Fatih Macit (Фатих Маджит)

**AN ECONOMIC PERSPECTIVE FOR TURKISH STREAM  
(ЭКОНОМИЧЕСКАЯ ПЕРСПЕКТИВА ТУРЕЦКОГО ПОТОКА)**

*Introduction*

Russia's President Vladimir Putin's visit to Ankara on December 1, 2014 came with a big surprise for energy markets. Putin announced the cancellation of the South Stream project which was planned to transport natural gas to southern Europe without crossing Ukraine. Although there were significant objections from the EU side for South Stream, Russia appeared to be very tenacious for the project and has already spent more than 5 billion dollars on the on-shore part of the project. The South Stream project had become much more important after the recent tension with Ukraine as almost half of the gas transported to EU is passing through Ukraine. In 2014, Russia sold 147 billion cubic meters (bcm) of natural gas to Europe and more than 60 bcm of that had been transported through Ukraine. A cutoff in supply due to the tension in Ukraine is particularly dangerous for some Eastern European countries that heavily depend on Russian gas in terms of their total natural gas consumption. An important feature of these countries like Poland, Czech Republic, and Slovakia, is that their economic growth rates are bigger than the European average. Therefore, a new pipeline project that will bypass Ukraine would play an important role in ensuring the security of energy supply and sustainable economic growth for these countries.

The cancellation of the South Stream project does not mean that Russia will continue with the current transportation infrastructure in terms

of natural gas exports to Europe. In the same visit, President Putin announced a new pipeline project, namely Turkish Stream that will pass through Turkey, Greece and then will transport natural gas to Europe. The total planned capacity of the new pipeline project will be 63 bcm and the initial gas flow is expected to occur by December 2016. Although the initial capacity will be slightly higher than 15 bcm, eventually the gas flowing through this route will replace the pipelines that are carrying gas to EU by crossing Ukraine. With other supply sources including the Azeri gas coming through TANAP, Russia is also planning to establish a gas hub at Turkey-Greece border. This seems to be very important in terms of Turkey's ambition to become an energy hub.

In this paper, an economic perspective will be provided for this new pipeline project in terms of both EU and Turkey. In particular, a demand and supply analysis will be presented in order to decide whether EU and Turkey needs such a big project taking into account the efforts of both sides in ensuring supply diversification and a more competitive market for natural gas. Section 2 gives an overview of demand and supply dynamics for EU natural gas market. Section 3 provides a perspective for Turkish natural gas market and provides an insight for the importance of the new pipeline for Turkey. Section 4 concludes.

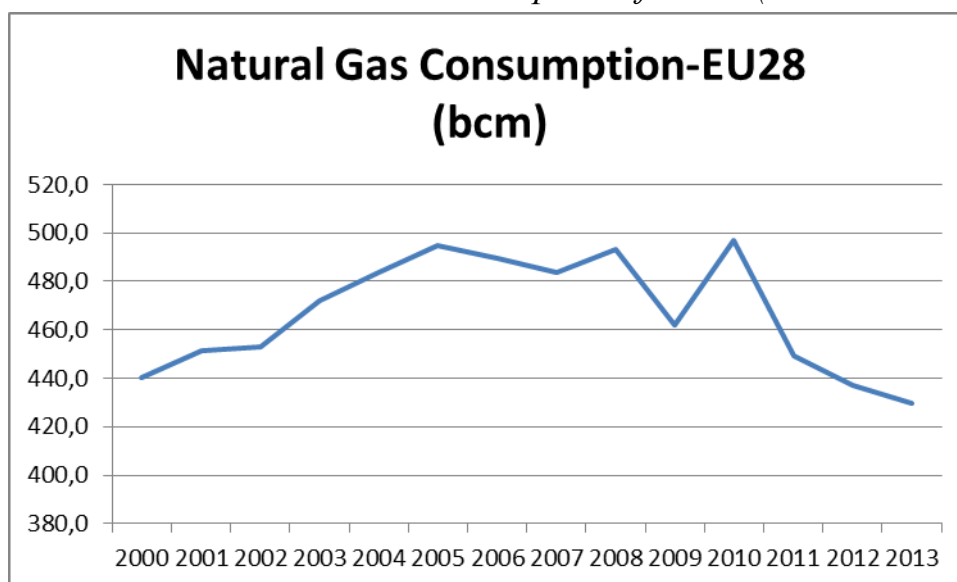
### *Eu Natural Gas Market Dynamics*

As the new pipeline project is expected to ensure a secure supply of natural gas to European market, it will be useful to present an overview of demand and supply dynamics in EU in order to provide an economic perspective for this project.

The analysis of the natural gas consumption of EU over the last decade shows a relatively flat pattern. As can be seen in Figure 1, although the consumption of natural gas has increased up to 497.1 bcm in 2010, the total consumption by the end of 2013 is at a level which is less than the one in 2000. Three factors have played an important role in the observed pattern for natural gas consumption in EU. The economic stagnation that

has been observed in the region since the 2008 global financial crisis has put a significant downward pressure on natural gas consumption. As it is seen in Table 1, the average economic growth rate in EU-28 for the period 2000–2007 was 2.51%. During this period the natural gas consumption of the region has increased by almost 10%. However, during the period followed by the global financial crisis, the average economic growth rate has been realized as – 0.13% and during this period natural gas consumption of the region has declined by 12.9%. Therefore, one can certainly attribute the decline in the natural gas consumption of EU to the slowdown in economic activity.

**Figure 1:** Annual Natural Gas Consumption of EU28 (Source: Eurostat)



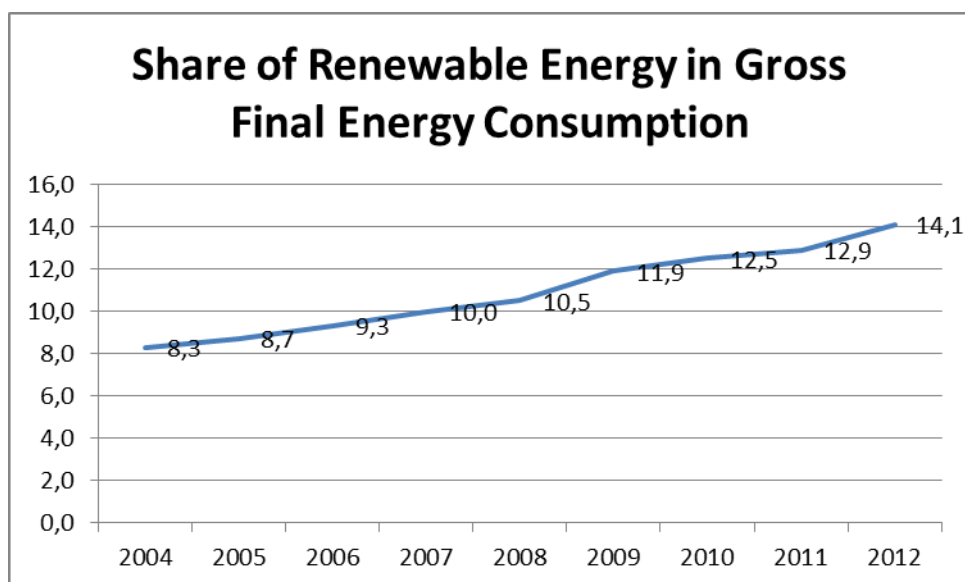
A second important factor that has created a downward pressure for the natural gas consumption of EU has been the increased use of renewables. By the end of 2004, the share of renewables in gross final energy consumption was 8.3%. In eight years' time, due to the generous subsidies that are given to the industry, the use of renewables has steadily increased and by the end of 2012 the share of renewable energy in gross final energy consumption has reached to 14.1%. Estimates reveal that renewable energy is in the first place among other energy sources in terms of substituting natural gas consumption. Macit (2013) shows that a one

percentage point increase in the share of renewable energy is expected to generate a 5.19% decline in natural gas consumption for EU. Therefore, the rapid rise of renewable energy has created a significant downward pressure for the natural gas consumption of EU.

**Table 1:** Average Economic Growth Rate for EU (Source: Eurostat)

	2000–2007	2008–2013
European Union (28 countries)	2,51%	- 0,13%
European Union (27 countries)	2,28%	- 0,12%
European Union (15 countries)	2,12%	- 0,25%

**Figure 2:** Share of Renewables in Gross Final Energy Consumption (Source: Eurostat)



Improvement in energy efficiency is the last important factor in explaining the relatively flat pattern in EU natural gas consumption since 2000. Energy intensity which is measured by gross inland consumption of energy divided GDP has declined by 11.1% during the period 2000–2010. The developments on the energy efficiency side have generated a downward pressure not only for natural gas consumption but other fossil fuels as well.

Although European natural gas demand has been in a declining trend since 2010, the region still meets almost 50% of total consumption by

imports. About 15% of total gas imports are composed of LNG and the rest is transported via pipelines. In terms of LNG imports Qatar, Algeria, and Nigeria are the main suppliers to European markets and Spain, France, Italy, and UK are the main buyers of LNG. Russia plays the dominant role for the pipeline imports and more than 30% of total gas consumption of the region comes from Russia. For some Eastern European countries this dependence on Russian gas reaches to 100%. The other pipeline import to EU is coming from Algeria and Libya and is serving to Italian market.

In order to analyze the future role of Russian gas in European markets and the importance of the new pipeline project, namely Turkish Stream one needs to make projections about future gas import demand of EU. There is a huge amount of variation among the projections that are made for the future gas demand of Europe. Assumptions about future economic growth rate of the region, improvements in energy efficiency, future contribution of other energy sources, in particular nuclear power and renewables, all play a role in the variation of future demand projections. Smith (2013) makes a meta-analysis for projecting EU natural gas demand up to 2030. He analyzes 24 different projections that are made by different institutions including European Commission, the International Energy Agency, the U.S. Energy Information Administration, and some major energy companies. The author finds for 2020 the difference between the highest projection and the lowest projection is 190 bcm and the number goes up to 248 bcm for 2030. There are some very optimistic expectations about future natural gas demand of Europe which claim that by 2030, the total gas consumption of the region may become close to 700 bcm. On the other hand, there are some very pessimistic projections which expect the gas demand to be lower than the level that was observed in 2010.

Although there is a large variation among the projections for EU natural gas demand by 2020 or 2030, there is a consensus that the domestic gas production of the region will decline. Norway, Netherlands, and UK are the three largest natural gas producers in the region and they meet almost half of the total gas consumption of the region. UK gas production

has been in a declining trend since 2000 and the projection for Norway is that the gas production in 2030 will be less than today. Therefore, even under a very moderate growth rate scenario, the natural gas import demand of Europe will significantly increase by 2030. According to BP Energy Outlook 2035, the dependence on imported natural gas will reach to 75% for EU by 2035.

An important question that needs to be answered at this point is about how Europe will meet this increased import demand for natural gas taking into account the efforts for supply diversification. In terms of additional LNG imports there is still some potential for Europe. The region has a very large LNG regasification capacity and the current utilization rate is around 30%. Large LNG producers in the world like Qatar, Algeria, and Nigeria may continue to become important suppliers to the region and they have the potential to increase their supply. However, LNG market is expected to grow at a faster rate in Asia-Pacific and due to more attractive prices the increase in supply to European markets might be limited.

The next additional gas supply for meeting increased import demand will come from Southern Corridor. This project has been in EU's agenda since early 1990s and the initial aim of the project was to transport Turkmen gas to European markets. This aim has never been realized but recently Turkey and Azerbaijan has initiated the Southern Corridor idea by the development of Trans-Anatolian-Pipeline (TANAP) project. The proposed pipeline is planned to transport natural gas from the Shah Deniz field of Azerbaijan and the first gas flow will occur in 2019 with a capacity of 16 bcm. Turkey will get 6 bcm of this amount and the remaining gas will go to Italian market passing through Greece, Albania, and Adriatic Sea. Although the initial amount seems to be very small, there is projection that this route might be supported with other sources including the gas supply from Northern Iraq, Eastern Mediterranean, and possibly Turkmenistan. Therefore, by 2030 the gas coming through Southern Corridor has the potential to meet a significant part of total consumption in EU. Taking into account the efforts of EU in terms of ensuring supply

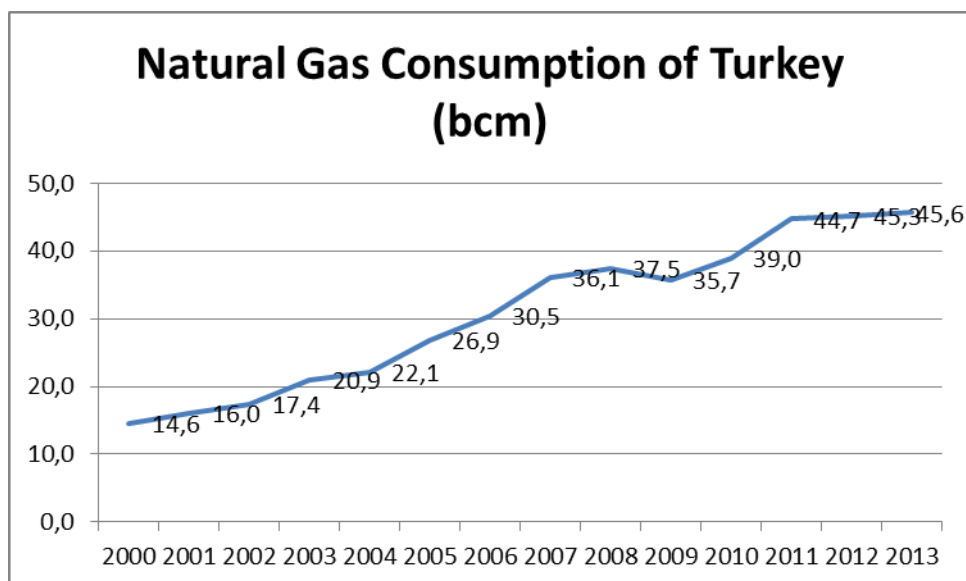
diversification in the natural gas market, this project appears to have a priority for Europe. However, these developments do not mean that European countries will significantly eliminate their reliance on Russia and the new proposed pipeline project will become economically infeasible. As it is mentioned before, even under a very moderate growth scenario, the dependence of Europe on imported natural gas will significantly increase over the next two decades. Additional LNG supply and the gas coming through Southern Corridor will help in meeting this increased import demand and will provide supply diversification to EU countries. However, Russia will probably continue to be the main supplier to European markets. The new gas supply coming from the Caspian and the Middle East through Southern Corridor could meet the additional import demand in the coming years and might reduce the market share of Russia in European markets. However, in absolute terms the amount of natural gas supplied by Russia will not change and the new pipeline project, namely Turkish Stream will play an important role in terms of ensuring supply security for Europe. Some Eastern European countries have experienced a cutoff in supply in the past due to the problems between Russia and Ukraine and therefore, Turk Stream is going to become more important in the future in terms of bypassing Ukraine and directly supplying gas to European markets. Besides that the new project means increased investment in some European countries, in particular Greece, who is facing significant economic problems over the last couple of years. In this regard, Turkish Stream will provide an additional investment spending and generate employment in Greece and other countries that it passes through.

#### *Implications For Turkey*

The analysis revealed that Turkish Stream will play an important role in energy future of Europe by providing a secure supply of natural gas. At this point it is also very important to understand the implications of the new pipeline project for Turkey. For this purpose a similar demand and supply analysis will be made for Turkish natural gas market.

Turkey has been one of the fastest growing countries in the world in terms of natural gas demand. During the period 2000–2013, the gas consumption of Turkey has more than tripled and increased from 14.6 bcm to 45.6 bcm. There are a couple of factors that are responsible for this very rapid increase in natural gas consumption. First of all, the economic boom that Turkey has experienced over the last decade has created an upward pressure in natural gas demand of Turkey. Although the economic activity has significantly slowed down during the 2008 global financial crisis, the average economic growth rate for the period 2002–2013 has been 5.1%. By the end of 2013 about 71% of natural gas that is consumed in Turkey is used in the electricity production and in the manufacturing industry. Therefore, an increase in economic growth rate generates a rapid boom in natural gas demand as well.

**Figure 3: Natural Gas Consumption of Turkey**  
(Source: BP Statistical Review of World Energy)



The second important factor that has contributed to the sharp increase in the natural gas demand for Turkey is the rise in the penetration rate. More than 20% of the total gas that is consumed in Turkey is used by households. By the end of 2002, the number of cities that have excess to natural gas was only 5. During the last decade, this number has



significantly increased and by the end of 2014, 71 cities in Turkey have natural gas infrastructure. This rapid increase in the penetration rate has generated a boom in the amount of natural gas that is consumed by households.

As the domestic gas resources of Turkey are very limited, approximately 97% of total gas consumption is met by imports. 86% of total imports are transported through pipelines and Russia, Iran, and Azerbaijan are the suppliers of this natural gas. The remaining part of the total import demand is met by LNG imports and Algeria, Nigeria, and Qatar appear to be the main suppliers.

*Table 2: Percentage Share in Total Gas Consumption of Turkey  
(Source: BP Statistical Review of World Energy)*

<b>Countries</b>	<b>Percentage Share</b>
Russia	57.5%
Iran	19.1%
Algeria	8.3%
Azerbaijan	7.2%
Nigeria	2.9%
Qatar	0.9%

Turkish Stream project is important for Turkey as well in terms of securing the supply of natural gas. Turkey is currently getting natural gas from Russia via two different pipelines. The first one, which is called Blue Stream, directly transports natural gas to Turkey and almost two thirds of the total gas that is imported from Russia comes through this route. As the Blue Stream directly aims to transport natural gas to Turkey and does not face any transit country risk, it appears as a very secure supply of natural gas to Turkey. The second pipeline that transports natural gas from Russia to Turkey passes through Ukraine, Romania, and Bulgaria and comes to the West border of Turkey and supplies natural gas to Western Thrace including Istanbul which has a total gas consumption of 5 bcm per year. Turkey gets 10 bcm of natural gas annually from this pipeline. This route

has the potential to experience a cutoff in supply due to the high consumption of other transit countries and a very recent decline in supply has been seen in late 2014. Therefore, the development of the Turk Stream project will eliminate Turkey's need to get natural gas from this line. As it is the case in the Blue Stream, Turkey will be directly getting natural gas from Russia without any transit country risk and will also enjoy transit country fees that will be obtained for the natural gas that is transported to Europe. Becoming an energy hub and a transit country Turkey will also be able to bargain over the gas prices as the current oil indexed contracts with Russia are expiring by mid-2020s.

Combined with the TANAP project which has a very high priority for Turkey, the Turkish Stream project will serve to the interest of Turkey for becoming an energy hub. There will be a 10 bcm of natural gas that will be transported through TANAP to European markets by 2019 and this route is expected to be supported by additional supply in the future including the gas coming from Northern Iraq, Turkmenistan, and Eastern Mediterranean. When the 63 bcm of natural gas that will come from Russia is added into this picture, Turkey will be a transit country that will be meeting more than 20% of total gas consumption of EU. However, there is one important aspect of this new project that Turkey needs to be very cautious. The natural gas consumption of Turkey has significantly increased over the last decade and is still expected to show the same upward trend due to its dynamic economy. There are some projections that by 2030, the total gas consumption of Turkey may reach to 75-80 bcm. Taking into account the high perspectives for future natural gas demand, Turkey should pay a special attention to supply diversification. Russia may continue to be a major supplier to Turkish markets and the Turkish Stream project may be an important pipeline in terms of securing the supply of natural gas. However, Turkey should also show effort for creating diverse sources of supply for his increased demand.

### *Conclusion*

The cancellation of the South Stream project and the replacement of that with a new pipeline called Turkish Stream are expected to have important implications for the natural gas markets in Europe and Turkey. With a total capacity of 63 bcm, Turkish Stream is planned to transport natural gas to Europe and Turkey without crossing Ukraine. Combined with other projects including TANAP, the new pipeline will make Turkey an important energy hub and transit country in terms of supplying natural gas to European markets.

Turk Stream also means a secure supply of natural gas to Europe particularly taking into account the tensions in Ukraine. Passing through a more stable country like Turkey who has an ambition to become a member of EU, the new project will increase the energy security of Europe. Additional LNG supply and the gas that will come through Southern Corridor will help Europe in terms of ensuring the diversification of supply. However, taking into account the prospects that the dependence of Europe to imported natural gas will increase, Russia will continue to be a major supplier to European markets. Therefore, Turkish Stream project will ensure the secure transportation of this natural gas to Europe.

### **REFERENCES:**

1. BP (2014). Statistical Review of World Energy.
2. BP. Energy Outlook 2035, <http://www.bp.com/en/global/corporate/about-bp/energy-economics/energy-outlook.html> (18.02.2015).
3. Eurostat. Database, <http://ec.europa.eu/eurostat/data/database> (30.01.2015).
4. **Macit, F.**, (2013). A Perspective on Future European Gas Demand. Caspian Strategy Institute.
5. **Smith, W.J.**, (2013). Projecting EU demand for natural gas to 2030: A meta-analysis. Energy Policy 58, 163-176.