NATURAL GAS SUPPLY SECURITY OF TURKEY AND ITS REGIONAL IMPACTS

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Overview

Turkey is one of the regional players that desire dependency in the Caspian Sea and the Middle Eastern energy environment by promising to re-arrange energy geopolitics and to address new energy governance or new energy policy. It is certain that positioning in a certain geographical space has made Turkey one of the active players between supplier and demanding countries. Turkey is unlikely to accept their claim that Turkey can only play as bridge or transit country, hosting major oil and natural gas pipeline. It is the fact that Turkey wants to be a trading hub, a place where energy is bought and sold but it needs to create a reliable energy policy in which both parties can mutually benefit from its regulations. This paper argues that even though Turkey is located in the crossroad between east and west, between north and south that makes it a natural hub, however, the lack of market liberalisation and absence of international energy regulations demonstrates uncertainty in its own energy market and transit regime that makes Turkey a passive player.

Turkey’s Energy Market Regulatory Authority (EMRA) operates market regulations and produce legal basis of market liberalisation. EMRA introduced the Natural Gas Law in 2001 in the same framework of European Union Acquis has already served as a model for Turkey’s market liberalisation. The Natural Gas Law is supposed to create competition. Turkey encourages the private sector in domestic gas distribution network. The fact is that Turkey is not natural gas producer country, which is why it is considered as third or second biggest market in European energy market after Germany in 2030s. Hence, Turkey’s market regulation needs more liberalisation to break the hegemony of state-owned BOTAS, which operate pipeline system and have authority to join international consortium. This liberalisation would make Turkey energy terminal so called Fourth Corridor for European gas network. Turkey supports all the projects connecting to the European gas network, especially Russia’ South Stream. In a sense that the initiatives of Interconnector of Turkey, TANAP (Trans Anatolian Natural Gas Pipeline Project), TURKISH STREAM, Greece and Italy (ITGI) and Trans Adriatic Pipeline (TAP) are open international co-operation to supply natural gas to Europe.

Key Words: Turkish Natural Gas Market, Legal Framework, Security of Supply, Gas Terminal, Investments
1. Introduction

In recent years the Turkish gas industry achieved a remarkable level in opening freely to competition via the establishment of a legal infrastructure. Important parts of the regulatory framework to facilitate the deregulations have been created. Natural Gas Market Law, adopted in 2001 and pursuant to the Energy Market Regulatory Authority, issued the necessary secondary legislation as a legal basis of the basic process of liberalization.

The EU (European Union) acquis and Turkey’s related regulatory reforms to create a model for the start of accession negotiations have added a faster impetus to the liberalization process.

For the establishment of natural gas distribution, legal and regulatory framework, as well as the success in the private sector to make investments in its field has been a great success. In short time many of the natural gas distribution tenders have resulted in very low distribution costs, and there have not been encountered any problems in terms of investment. In this way, the number of users of natural gas in Turkey increased on a regular basis, and the penetration of natural gas accelerated.

![Natural Gas Market Value Chain](image)

Figure 1. Natural gas market value chain

2. Natural Gas Market In Turkey And Regulatory Framework

2.1. The Market

Turkey’s demand for natural gas has grown exponentially since the late 1980’s. Natural gas consumption in Turkey began in 1987. Since then, consumption has increased rapidly and in 2014 reached 48 billion cubic meters. Natural gas consumption in the last ten years has increased 2 times. Not only because of the expansion of gas transmission and distribution networks but also due to the increasing share of natural gas in electricity generation. Indeed, per considering the latest developments, Turkey reached European averages by consuming the natural gas which contains 25 percent of the total energy consumption.
In 2013, according to the data of EMRA, 21 billion cubic meters gas via electricity producers, approximately 8.6 billion cubic meters via industries, 9.5 billion cubic meters via housing have been consumed.

![Allocation of natural gas consumption in Turkey in 2013](image)

**Figure 2 - Allocation of natural gas in Turkey in 2013.**

Turkish natural gas consumption profile of the natural gas share in electricity production is deemed to be high. In terms of international comparisons this rate of 45.85 percent is very high. However, demand for natural gas in the next period is expected to continue in increase. Per BOTAS’s (Importer company) estimates, the consumption will be 51 billion cubic meters in 2015 as which will be 65 in 2020. Increase in demand on one hand will be implemented by connecting the network further in the city resulting additional numbers of city via development of the infrastructure; as on other hand, gaining more consumers through privatization of the distribution services. At the same time, the new natural gas-based electricity generating power plants will demand more natural gas consumption. Having too much demand is the most serious obstacle in terms of the natural gas market. By the 1990 estimates, the usage of natural gas was bit high. Economic crises experienced in 1999 and 2001 also have contribution in this. Turkey however, basis on these estimates, signed 25-year gas purchase agreement. Per resulting high domestic consumption, Turkey committed a liability of importing natural gas.
Therefore the biggest barrier in terms of creating health competition is that imports that in accordance with existing agreements made by BOTAS is already meeting the short-term consumption. This is causing a delay in creating fair competition in the market. As looking medium and long-term view, to avoid supply shortage by increasing natural gas demand in electricity production and rapid-stable increase because of widespread use, the necessary precautions now must be taken. Steps on protection of existing resources and creation of new resources must be in support of competitiveness and which should be taken into consideration.

## 2.2. The Regulatory Framework

In Turkey; gas imports, trade, transmission and storage services are monopolized by a public company of BOTAS. The Natural Gas Market law which is regulated in April 2001 via article 4646 opens up the other areas of the sector to the competition. The law with the exception of “national transmission line” ended the monopoly rights of BOTAS and issued separate licenses for import, production, transmission, storage, wholesale, export and distribution activities within the city. The natural gas transmission network is currently in the hands of BOTAS. Private companies construct and own the natural gas transmission network with a condition of establishing links to the existing network in between. As a result, the law targets to convert the market from BOTAS’s monopolistic dominance by withdrawing their entry and investment to a competitive structure. On the other hand, as required in the current time, the EMRA has formed the secondary legislation with Rules and Notifications.

Law enforcement is prepared to the following regulations;

1) License Regulations
2) Tariffs Regulation
3) Certificate Regulations
4) Distribution and Customer Services Regulation
5) Internal Installment Regulation
6) Network Code Regulations
7) Facilities Regulation
8) Preliminary Research and Investigation Procedures Track and the Natural Gas Market Control Principles

About the Regulations

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### Table 1 - Natural gas purchase agreements

<table>
<thead>
<tr>
<th>Suppliers</th>
<th>Country</th>
<th>Amount (Plateau bcm)</th>
<th>Signing Time (Year)</th>
<th>Duration (Year)</th>
<th>Start Date</th>
<th>End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOTAS</td>
<td>ALGERIA (LNG)</td>
<td>4.4</td>
<td>14.04.1988</td>
<td>30</td>
<td>1994</td>
<td>2024</td>
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<td></td>
<td>NIGERIA (LNG)</td>
<td>1.3</td>
<td>09.11.1995</td>
<td>22</td>
<td>1999</td>
<td>2021</td>
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<tr>
<td></td>
<td>IRAN</td>
<td>9.6</td>
<td>08.08.1996</td>
<td>25</td>
<td>2001</td>
<td>2026</td>
</tr>
<tr>
<td></td>
<td>RUSSIA (BLUE STREAM)</td>
<td>16</td>
<td>15.12.1997</td>
<td>25</td>
<td>2003</td>
<td>2025</td>
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<tr>
<td></td>
<td>AZERBAIJAN</td>
<td>6</td>
<td></td>
<td>15</td>
<td>2018</td>
<td>2033</td>
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<tr>
<td></td>
<td>RUSSIA (WEST)</td>
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<td>12.03.2001</td>
<td>15</td>
<td>2007</td>
<td>2021</td>
</tr>
<tr>
<td>SHEL</td>
<td>RUSSIA (WEST)</td>
<td>4</td>
<td>18.02.1998</td>
<td>23</td>
<td>1998</td>
<td>2021</td>
</tr>
<tr>
<td>AVRASYA</td>
<td>RUSSIA (WEST)</td>
<td>0.25</td>
<td>19.12.2007</td>
<td>14</td>
<td>2007</td>
<td>2021</td>
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<td>ENERCO</td>
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<td>01.04.2009</td>
<td>12</td>
<td>2009</td>
<td>2021</td>
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<tr>
<td>BOSPHORUS</td>
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<td>0.75</td>
<td>03.01.2009</td>
<td>12</td>
<td>2009</td>
<td>2021</td>
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<tr>
<td></td>
<td>RUSSIA (WEST)</td>
<td>1.75</td>
<td>26.11.2012</td>
<td>30</td>
<td>2012</td>
<td>2042</td>
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<tr>
<td>AKSEL GAZ</td>
<td>RUSSIA (WEST)</td>
<td>2.25</td>
<td>26.11.2012</td>
<td>30</td>
<td>2012</td>
<td>2042</td>
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<tr>
<td>KIBARI ENERJI</td>
<td>RUSSIA (WEST)</td>
<td>1</td>
<td>26.11.2012</td>
<td>30</td>
<td>2012</td>
<td>2042</td>
</tr>
<tr>
<td>BATI HATTI GAZ</td>
<td>RUSSIA (WEST)</td>
<td>1</td>
<td>26.11.2012</td>
<td>30</td>
<td>2012</td>
<td>2035</td>
</tr>
</tbody>
</table>
The problem of supply security is closely connected with the liberalisation of the natural gas market and the need for infrastructure investments to eliminate constraints. The most obvious obstacle that prevents private players from making new import arrangements is the provision in Natural Gas Market Law No. 4646, which does not allow private companies to import pipeline gas from supplier countries that already have a supply agreement with BOTAŞ. Contract transfers by BOTAŞ is the only exception. More generally, the enforcement of cost-based pricing for BOTAŞ and the establishment of a natural gas spot market would provide a competitive market for the private players.

The expansion of the natural gas transmission network and the construction of new storage facilities and LNG terminals are necessary to accommodate increasing amounts of gas in the system. Importers, wholesale companies and suppliers of last resort need access to sufficient storage capacity to meet their storage obligations for supply security purposes. Expected to provide a more viable market, the draft amendments to the Law No. 4646 include the following requirements:

- Importers should make the necessary arrangements with the storage companies to obtain sufficient capacity to store 10% of their imports.
- The supplier (i.e. importer or wholesaler) is required to guarantee gas supply for the duration of the supply contract. The regulator may also oblige the supplier company to have a sufficient number of interruptible customers in the customer base to help meet this requirement. This is a controversial provision, which spares the distribution company from the risk of seasonal-demand fluctuations and instead increases the supplier’s exposure to it.
- Wholesale suppliers to distribution companies and suppliers of last resort are required to have the storage capabilities to meet seasonal increases in demand. Suppliers of last resort will be determined by the EPDK based on their storage/ LNG import capabilities and existing supply commitments.

Natural Gas Market Law’s certain applications that are enable to create competition in the sector are discussed below in more detail.

**Unbundling**

As to create fair and sustainable competition, in the sectors that infrastructure is monopolized and owner of the event that Infrastructure Company is competing in different sections of the market, obligation of unbundling is given to infrastructure Company by the legislator. Obligation of unbundling is implemented in three ways.”Accounting Unbundling” is about filing separately both; the activities that are in the section where companies are vertically integrated, and activities that are in competitive markets. This is the most basic separation measure. “Legal Unbundling” named method offers in the vertically integrated company where in infrastructure activities and competitive markets are under different legal entities.

Finally in “The ownership unbundling” method, the legal identity who is conducting the infrastructure activities and the service provider who is operating in the competitive market must have different shareholder structure.

In Turkey, the terms of the unbundling are associated with a dimension, distribution activities that are not compatible with EU. In EU, 2003 of Natural Gas Directive distribution activities are forced be separated legally, where in Natural Gas Market law this is not necessary as it is indicated on article 4646. In other words, a company operating in the natural gas sector is allowed keep the operations of production and distribution under the same entity but must have different accounting (Law, Article 6a, 2 and 7c). Similarly in the subject of unbundling the distribution from the retail sales, the Act only requires accounting unbundling (Law; Provisional Article 3d).
Access To Infrastructure

To ensure competition in natural gas market, access to transmission infrastructure also needs to be regulated. The issues to be considered here, to prevent discrimination from the owner of the transmission infrastructure of the company (BOTAS) favoring its affiliated companies which are in the business of wholesale distribution. (In fact, the law enables private capitals to invest in transmission infrastructure.). Indeed, this was one of the difficulties that encountered in the opening stage of the competitive market of Europe. In those countries, the public operator who owns the transmission infrastructure, in the natural gas sector a more serious competition being experienced, as to produce or provide advantage in the branches of their wholesales companies; the third parties, accessing to the transmission infrastructure have been made complicated or delayed. To avoid the same difficulties in the Turkey, the law allows third party accessing to transmission infrastructure by a provided specific tariff. Here the law adopts a method of intervention to encourage more competition. Instead of, third party negotiating with transmission line Company, it has been foreseen that the connection and transmission tariffs are determined by the EMRA. Moreover, EMRA must be strengthen if in case of a problem encounters between the third party and BOTAS in the subject of accessing the transmission lines.

Storage

Natural Gas Market Act envisages the negotiations subject in access to storage. In other words, natural gas companies who are operating in the field of doing wholesale and import will negotiate the terms with natural gas storage owners about accessing the storage. As to secure the supply of natural gas, the law requires that the companies who are operating as wholesale and import must keep 10 percent of their annual import and or wholesales natural gas amount in their thanks. Therefore accessing the natural gas tank is important in terms of improving the competition. In July 2007, an underground storage facility opened in Istanbul. This plant is a joint venture between BOTAS and TPAO (Turkish Petroleum Inc.) Another plant move to Salt Lake is also being planned.

On the other hand, there are LNG terminals in Marmara and in Izmir which are belonged to BOTAS and Egegaz. The terminal storage capacity ranked as 255,000 and 280,000 cubic meters. With exception of natural gas pipeline, LNG’s that are produced in Algeria and Nigeria are converted to natural gas and delivered to the main system at these terminals.

<table>
<thead>
<tr>
<th>Company</th>
<th>Facility</th>
<th>Place</th>
<th>Storage Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOTAS</td>
<td>LNG</td>
<td>Marmara Ereğlisı / Tekirdağ</td>
<td>255,000 m³ LNG (85,000 m³ x 3)</td>
</tr>
<tr>
<td>Ege Gaz A.Ş.</td>
<td>LNG</td>
<td>Alağa / İzmir</td>
<td>280,000 m³ LNG (140,000 m³ x 2)</td>
</tr>
<tr>
<td>TPAO</td>
<td>USG</td>
<td>Silivri / İstanbul</td>
<td>2,661,000,000 m³</td>
</tr>
<tr>
<td>BOTAŞ</td>
<td>USG</td>
<td>Sultanhanı / Aksaray</td>
<td>1,500,000,000 m³</td>
</tr>
</tbody>
</table>

Table 2 - Turkish natural gas storage capacities
Consumption

Under the law, EMRA is authorized to determine the threshold level for the free consumers. Concept of free consumer is a given name for customer or customer groups who can make purchases directly from supplying companies. They are: Free consumers, free electricity producing companies, car manufacturers, gas production companies and all other consumers, or group of consumers. As of 2007, the threshold that is for old consumers or group of old consumers is defined as 800,000 cubic meters per year. It is expected for EMRA to draw down the consumer threshold to let the market be more available for competition.

Estimated national consumption:
Natural gas consumption is estimated each year by EMRA. In this context EMRA has been estimating consumption since 2004.

Deviation that is described and implemented in 2010 is +1.11%, in 2011 +12.04%; in 2012 -6.72%, in 2013 -3.53%, in 2014 +3.2%.

Figure 3 - Turkey-2023 consumption estimates
Distribution

Very first dynamics element of the increase in gas consumption is the use of gas consumption being spread across the nation. Constructing inner-city gas distribution networks is a good example of how private investment can be drawn to infrastructure projects. Expanding gas distribution to more provinces has led to an increase in industrial and residential natural gas consumption. For the most part, private companies, which bid the lowest distribution fee in the tender for the first eight years of the network’s operation, build these.

In 2003 where there were only 6 cities offering natural gas versus 64 distribution regions has been tendered up to present 2015. Building up the gas distribution quickly is all related to the success of the framework provided by the private sector.

The schematic stage of the natural gas, encouraging the country wide distribution is given below.

Figure 4 – Gas distribution process model for cities

- Legal entities who received the distribution license through bidding from the date of effect are obligated of;
• beginning the actual investment within minimum in six (6) months,
• serving (supply) gas in minimum eighteen months by establishing the distribution network in any city
• Connecting each customers to the distribution network base who want to use natural gas

➢ Unit service and depreciation cost from the bidding are implemented via the time period specified in the articles and conditions. The price ceiling is determined by EMRA unit service and depreciation costs will be applied after the end of this period.

About the distribution between the provisions of the legislation, there is an article indicating that the distribution companies can maximum make half of their purchases from a single company. This provision is done by legislators in order to help competition in the market. However, at what point and time the distribution companies will be held responsible to comply with this provision is not yet certain.

Compared with other countries that are passing through a similar process; the periods relating the privately distributed natural gas is expressing very successful results. In this way, natural gas distribution was made possible by rapidly growing number of regions as well as increasing the natural gas distribution system in the region via new investments. Liberalization model that is used in this and EMRA that is controlling the process is playing a great role.

**Wholesale Markets**

Another important element of improving the competition in the natural gas sector is the improvement of wholesale market. Competition in the wholesale market has not been gained yet. This is mainly because Turkey signed long-term agreements with natural gas exporter of 6 counties in 1980’s especially 1990’s. BOTAS’s extreme obligation have not given any permission for additional imports. As to protect the wholesale competition temporary article states that BOTAŞ’s new purchase of natural gas is prohibited unless ratio of consumption falls below 20 percent in total imports of gas.

Law No. 4646 requires distribution companies to buy only up to 50% of their natural gas needs from one supplier. This provision was not implemented due to BOTAŞ sustained dominance in the market, as explained above. Due to its dominant position in the market, BOTAŞ’ tarif for distribution companies and eligible consumers are taken as benchmark in the pricing by the private wholesale companies as well. As such, BOTAŞ pricing policy has not only distorted competition, but has also affected its own financial position, leading to questions about its sustainability.
Until today, the following licenses were awarded: transmission 20, exporting 9, storage 6, and imports 56, Wholesale Sales 56, CNG 118, distribution 69; total 325.

3. Security of Supply In The Turkish Gas Market

BOTAS traditionally makes most of its gas imports via its long term contracts with Russia, Iran, Azerbaijan, Algeria and Nigeria. While the imports from Azerbaijan and the liberalization of the spot LNG import regime have slightly reduced Turkey’s dependency on Russian gas, the share of Russian gas exports in the Turkish supply mix is still very high at 58%. Private players also buying gas from Russia now following the transfer of 10 BCM worth of contracts from BOTAS to the private players.

Once the TANAP is complete Turkey will start to buy an extra 6 BCM from the second phase of the Shah Deniz field. An addition 10 BCM from the Shah Deniz field is allocated to the European gas market. The Southern Gas Corridor’s potential is not limited to Azeri gas, as it may also transport new supplies from eastern Mediterranean, Turkmenistan and Irak in the future. The diversity of potential suppliers and the possibility to expand volumes also have positive implications for Turkey’s supply security.

In demand of natural gas as well as being a clean fuel with ease of use, cost function of industries domestic investments also have been effective. One of the reason why the natural gas is used as fuel as to cover the need of electricity in urgent cases with short period of investment and low cost.

Government’s policy has been in this direction and investments are supported by government to come to today’s point. Being closer to natural gas producing countries is another reason why the usage is adapted.
Factors Affecting Supply Security

Determining the Balance Elements of Turkish Natural Gas Supply and Demand in the future:

- The new infrastructure investments,
- Population growth,
- Growth in Gross National Product,
- Increase in the production capacity of gas fuel, natural gas fueled power plants,
- Contracts of new gas purchases,
- Free market regulations (price competition),
- World oil prices,
- Project duration and cost (storage, such as new supply sources)
- Developments in the global natural gas market
- Economic and political stability (within the country and region)

Natural gas in our country used respectively to generate electricity in housing and industry. It is used in production of fertilizer as it depends on economic factors. Natural gas is used in many different ways such as for housings; heating houses, providing hot water and cooking, for industries; from producing electricity all the way to steam, generation process of the thermal-energy requirements. Also the use of such fuel is used in transportation sector in cars. However the type of this usage has a low utilization rate.

Per looking at consumption values in the structure of consumption; industry, domestic use and electricity production seem unbalanced. Today, the amount of natural gas used to produce electricity in Turkey is equal to more than the half of the total consumption.
Domestic Production

The natural gas exploration and production activities are carried out under the exploration and operation licenses which are granted by the General Directorate of Petroleum Affairs in accordance with Petroleum Law No 6326. Although production activities are not regarded as market activities under the Law, the production companies, provided that they hold a wholesale license, may market the natural gas they have generated to wholesale companies, import companies, export companies, distribution companies, CNG transmission and distribution companies, CNG sales companies only if it is brought out from the wellhead or the eligible consumers.

Turkey has very limited potential in terms of known natural gas reserves. As of the end of 2005, proven gas reserves that can be produced is 14.7 bcm, the amount of cumulative production is 7.7 bcm, the amount of remaining production reserve is 6.9 bcm. 98% natural gas consumed in our country is imported and remained 2% is produced in the fields of Turkish Petroleum Inc. (TPAO) and private enterprises. Eight wholesale license holder companies carrying out generation activities at home offered 537 million Sm³ natural gas into the market in 2013.

Geopolitics

Turkish Natural Gas Terminal Vision

In terms of geographical sources of energy, Turkey stands between east where it is rich and west where the consumption is high. Turkey’s geopolitical position will upgrade because the country no more will become an end user of Russian gas. Both from the Blue Stream and from the West Line (Ukraine-Moldova, Romania, Bulgaria transit line) Turkey is currently an end consumer for Russian gas. New projects will turn Turkey into an intermediate user as Turkish territory will be used to export additional volumes to European gas market. It makes geopolitical position of Turkey stronger and will inevitably make Russia and Turkey closer to each other in a balanced way. Turkey's closest neighbors on the other hand, Iran, Russia, Azerbaijan, Turkmenistan, Uzbekistan and Kazakhstan's reserves reaches 47 percent of the world’s proven natural gas reserves. The position of Turkey in the field of energy makes it possible to play a bridge role. Indeed, Turkey is aware of this advantageous position as conducting a policy for the purpose to be the regional energy center. Basis of this policy through the development of the axis of the pipeline is for Turkey to be the terminal in natural gas and petroleum.

Existing Lines

Blue Stream: The Blue Stream gas pipeline secures annual direct supply of some 16 billion cubic meters of Russian natural gas to Turkish consumers under the Black Sea. The cooperation in the gas sector between Russia and Turkey commenced in 1984 when the Governments of the Republic of Turkey and the USSR signed the Agreement on natural gas supply to Turkey.

Russia Western Line: Through Trakya to terminal in Marmara Eregli natural gas of 11-14 bcm per year is provided by the source country of Russia. Capacity of the pipeline is 14 bcm.

Iran line (Tabriz-Erzurum): Turkey gets natural gas of 10 bcm per year obtained from Tebriz Iran.

Azerbaijan Line (Baku-Erzurum): Turkey receives approximately 6.6 bcm worth of natural gas from Azerbaijan which is entered into service every year. Much higher amount of gas is expected to move to Turkey by the line of production increase over the time and Turkmen gas to be added via agreement.
ITGI: System is a multi-source import project that will contribute to the European diversification and security of supply by opening the so called “Southern Gas Corridor”. The pipeline is designed to transport approximately 15 billion cubic metres of natural gas a year from Caspian, East Med and/or Middle East areas to Italy and Europe through Turkey and Greece.

The project comprises the following pipeline sections:

- Turkish grid, which will be upgraded in order to enable the transit of gas volumes for Italy and Greece
- ITG (Interconnector Turkey-Greece) which is in operation since November 2007 and has a transport capacity of about 11.5 billion cubic meters of natural gas a year.
- IGI (Interconnector Greece-Italy) project with a transport capacity of about 12 billion cubic metres of natural gas a year. IGI pipeline will be 800 kilometers long and includes:
  - IGI Onshore: 600 km onshore pipeline in the Greek territory (to be developed by Desfa, the Greek Transmission System Operator);
  - IGI Poseidon: 200 km offshore pipeline across the Ionian Sea (under development by IGI Poseidon SA, a joint venture between Edison and the Greek company Depa).

Planned Investments

**Trans Anatolian Natural Gas Pipeline (TANAP):** TANAP is projected to transport natural gas from the Shah Deniz 2 field on the Caspian Sea and other Azerbaijani fields, through Turkey and to Europe. TANAP is part of the Southern Gas Corridor project along with the Trans Adriatic Pipeline (TAP), and the second stage of the development of the Shah Deniz gas field in Azerbaijan. The 3.500km-long TANAP is to carry gas from Azerbaijan via Turkey to Greece, and from the Turkey-Greece border it will continue through Greece, Albania and will end in Italy. The gas pipeline is to be launched in 2019. In its first stage, it is to carry 16 billion cubic meters of gas a year, with the volume to increase gradually to 22, 24, and 32 billion cubic meters. Bulgaria is also to receive 1 bcm of gas from Azerbaijan every year between 2020-2045.

**Iran:** Per signed agreement with government of Iran in 2007, the amount of natural gas that is obtained from Iran is expected to be 30 bcm per year. The gas obtained from Iran will essentially be the link between Greece or exported to Europe through Nabucco. Addition to the production of Iran, transporting the gas from Turkmenistan to Turkey via Iran is envisaged. In order to implement this plan, increasing the capacity of natural gas pipeline between Turkey and Iran is required.

**Turkmenistan:** Is the world’s leading country in terms of having high natural gas reserves as in efforts to obtain gas from Turkmenistan has been ongoing for a long time (the first diplomatic initiatives began in 1991). An agreement was signed by the two countries presidents to export 16 bcm worth of natural gas. However, because of the unsolved problems in Caspian sea the necessary investment was not completed in Turkmenistan. In this case, exporting gas from Turkmenistan through Iran is the focus of the scenario.

**Iraq pipeline:** in 1996, Turkey and Iraq signed an agreement to build 10 bcm capacity natural gas pipelines. However, because of the instability in Iraq, the project has never been implemented.

**Egypt:** In order to obtain natural gas from its north and east bordered neighbors, Turkey launched initiatives with as well as neighbors in the south. Via the result of negotiations a framework agreement was signed with this
country. With this agreement, the volume of 4 BCM of natural gas to Europe via Turkey is expected to be exported. To do this, a pipeline construction under the Mediterranean Sea connecting Egypt to Turkey is being planned. Another alternative is to have an Arabic natural gas pipeline link to Turkey.

**Syria**: Via the agreement signed in 2008 between Turkey and Syria, connecting the the Arabic natural gas pipeline from Egypt to Syria also by creating a connection between Halep and Kilis, were decided to be build to extend them all the way to Turkey.

**New gas pipeline towards Turkey**: On December 1, 2014 Gazprom and BOTAS Petroleum Pipeline Corporation signed a Memorandum of Understanding on constructing an offshore gas pipeline across the Black Sea towards Turkey. The new gas pipeline will have a capacity of 63 billion cubic meters, with 14 billion cubic meters slated for Turkish consumers (identical amount is being delivered via the Balkan Corridor) and nearly 50 billion cubic meters conveyed to the border between Turkey and Greece, where a delivery point will be arranged. The Russkaya compressor station being under construction in the Krasnodar Territory will serve as the pipeline starting point.

### 4. Conclusions

Turkey does not want to remain as a transit country because of its geographical position, but aims to take a part in trades dealing with Europe.

In the legal infrastructure, a remarkable progress has been made in terms of opening the sector to competition. An important part of the legal regulatory framework has been created.

It needs to be expressed that the adapted model used in privatization of gas distribution has been successful. In this way, tenders have been made in 69 regions in order to distribute the gas by private companies. As stated in articles and conditions, companies who won the bid are seen to make the investments quickly to take the steps in creating the network allowing users to connect immediately.

Wholesale sales market is currently experiencing a surplus of supply. Because of too much supply, by signing agreements with gas producer countries, it is not possible for new companies to enter the wholesale market.

Turkey must diversify the variety of its supply sources in order to ensure effective competition in the long term and to be the vision of becoming energy terminal in the region.

BOTAS unbundling needs to go forward. The reduction of BOTAS market share through volume and contract transfers to private companies is vital to market liberalization. Prices in the natural gas market should reflect the costs; cross-subsidization between customer groups should be prohibited.

An effective third-party access regime with exemptions should be introduced for private storage and LNG terminal investments. Regulatory constraints should be eliminated in gas trading. A natural gas spot market should be established under EPIAS (Energy Markets Operation Company)
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