RESTRUCTURING PROCESS OF TURKISH NATURAL GAS MARKET AND TODAY

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ABSTRACT

As in most countries of the world, in Turkey; oil and natural gas constitute the major share in energy consumption. Domestic sources are far from meeting the growing energy demand; Turkey is importing significant amounts of oil and natural gas. High economic growth and increasing prosperity are causing a change in consumption habits. As a result, primary energy consumption is increasing at annual rate of %6.

The legal framework for the natural gas market in Turkey formed for the first time with Law No 6326 Petroleum Act. In 1987 BOTAS was the only player in natural gas market, responsible for transmission and trading activities. Natural Gas Market Law No. 4646 which came into force in 2002, officially ended in this position and EMRA became the regulatory authority responsible for regulation of the market. Parallel with the success in forming the legal and regulatory frameworks, there has been significant success on the part of the private sector which invested in natural gas distribution. Several natural gas distribution tenders were finalized in quite a short time with very low distribution charges. However, a look at the wholesale market reveals that there are still problems.

In this study, the development of the natural gas market in Turkey is examined. Also the structures before and after the Law No 4646 are analyzed.

1. INTRODUCTION

The first economical natural gas discovery in Turkey was made in 1970 by Turkish Petroleum Corporation (TPAO) at the Hamitabat and Kumrular Fields and started being used in Hamitabat Pinarhisar Cement factory in 1976.

According to General Directorate of Petroleum Affairs (GDPA) Turkey's natural gas reserve is 23,8 bcm. Recoverable gas volume is 18,2 billion cubic meters (bcm). Cumulative production is 12 bcm while remaining recoverable gas reserve is 6,2 bcm. (http://www.pigm.gov.tr/istatistikler.php)

Years	Natural Gas Production Of Türkiye Based On Years (Cubic Meter)
1999	731.098.727
2000	639.222.969
2001	311.562.545
2002	378.402.738
2003	560.633.511
2004	707.008.763
2005	896.424.950
2006	906.587.974
2007	893.055.000
2008	1.014.530.570
2009	729.414.369
2010	725.993.340

Figure 1 Natural Gas Production Of Turkey Based On Years
http://www.pigm.gov.tr/uretim.php

2. SUPPLY

After the first agreement concerning natural gas import was undersigned by and between Turkey and USSR; Natural gas export-import agreement for 25 years was undersigned by and between Pipeline Transportation Corporation (BOTAŞ) (Turkey) and Soyuzgazexport (USSR) on 16th February 1986. The plateau value of this agreement was 6 bcm. The construction of the pipe line starting from Bulgarian border started on 26th October 1986, which was 842 km. long. Russian Federation-Turkey Natural Gas Pipeline, entered to Turkey from the border in 06.1987 and following the route Istanbul, Izmit, Bursa and Eskisehir reached to Ankara in August 1988. Natural gas use was introduced to houses and industry in Ankara in October 1988, Istanbul in January 1992, Bursa in December 1992, İzmit in September 1996 and Eskişehir in October 1996.

Turkey signed eight long term contracts with seven different supply sources.(see figure2). The next contract to expire will be the Algerian LNG contract in 2014. Turkey and Qatar signed a Memorandum of Understanding which eventually led to LNG and pipeline gas imports. Turkish Government also considers Egypt and Iraq as highly potential supply countries.

AGREEMENTS	Volume(bm³/year)	Date	Duratıon (Year)	Status
RUS.FED. (WEST)	6	14.Feb.86	25	In operation
ALGERIA (LNG)	4	14.Apr.88	20	In operation
NIGERIA (LNG)	1,2	09.Nov.95	22	In operation
IRAN	10	08.Agu.96	25	In operation
RUS.FED (BLACKSEA)	16	15.Dec.97	25	In operation
RUS.FED. (WEST)	8	18.Feb.98	23	In operation
TURKMENISTAN	16	21.May.99	30	-
AZARBAICAN	6,6	12.Mar.01	15	In operation

Figure 2 Natural Gas Purchase contracts www.botas.gov.tr

3. MARKET STRUCTURE PRIOR TO THE NATURAL GAS ACT

The legal process regarding the natural gas sector in Turkey began with the entry of Decree Law (DL) No 350 which came into force in 1988. BOTAŞ's monopoly rights on natural gas import, distribution, sales and pricing that was granted by the Decree of Natural Gas Utilization No. 397 dated February 9, 1990. BOTAŞ's monopoly rights on natural gas import, distribution, sales and pricing that were were abolished by the Natural Gas Market Law No 4646.Untill that date BOTAŞ also made distribution in Bursa and Eskişehir. In Ankara (EGO), İstanbul(IGDAŞ) and in İzmit (İZGAZ) gas distribution was made by municipality owned companies.

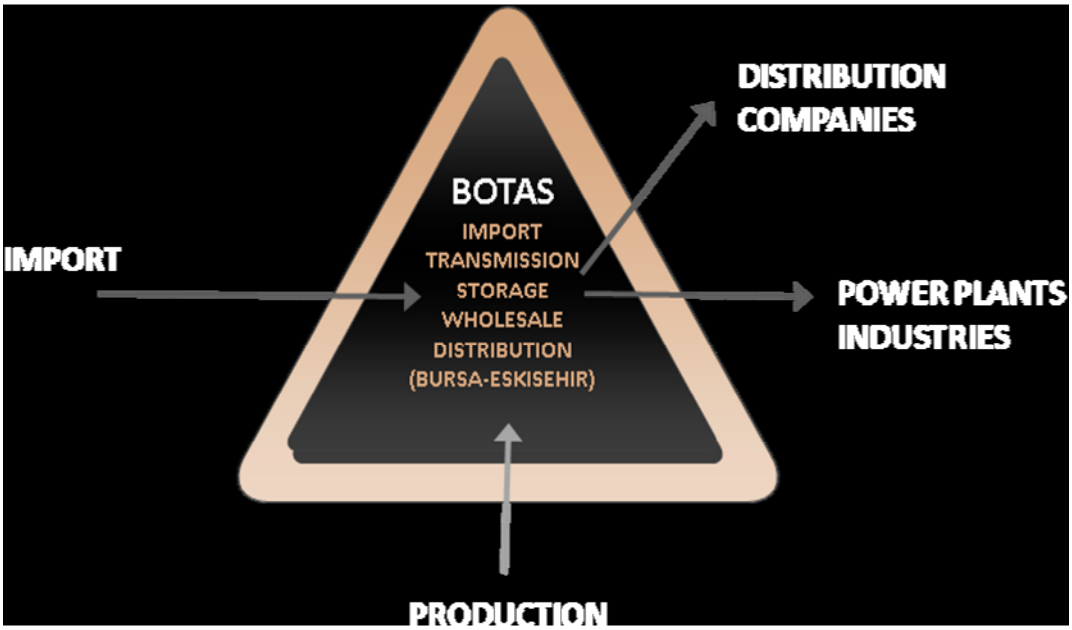

Figure 3 Market structure prior to natural gas act www.epdk.gov.tr

4. TARGETED STRUCTURE OF GAS MARKET

Western European countries made legal and administrative arrangements to reduce the social welfare losses caused by monopoly firms and to establish a efficient competitive environment in the energy markets.

Turkey's ongoing energy reform is based on Natural Gas Market Law No 4646. On 2nd May 2001Natural gas Market Law No. 4646 which was enforced aims to create a transparent and competitive natural gas market instead of the current monopolistic structure.

The objectives of the Law, are to establish a financially viable, stable and transparent energy market, which will function as per the provisions of private law and within a competitive environment to ensure the independent regulation and supervision of the market in order to provide sufficient natural gas of good quality to consumers, at low cost, in a reliable and environment friendly manner.

The key institution in restructuring the Market is Energy Market Regulatory Authority (EMRA) which is independent regulator for electricity, petroleum, natural gas and LPG markets.

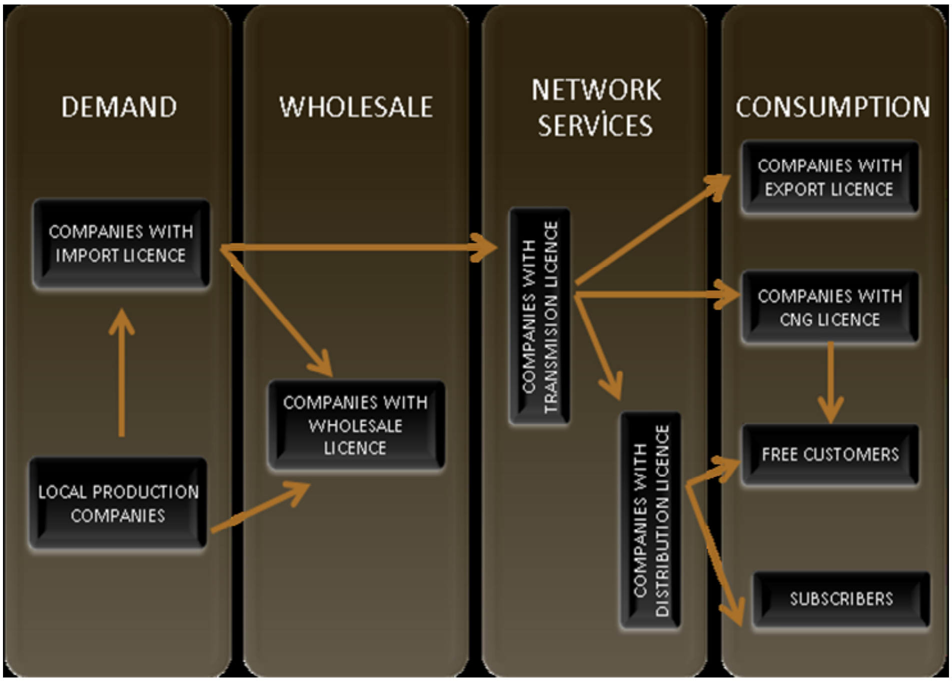

Figure4 Targeted structure of the market after Law No 4646 www.epdk.gov.tr

5. REGULATORY FRAMEWORK

The Natural Gas Market law which is regulated in May 2001 via article 4646 opens up the other areas of the sector to the competition. The Law meets the requirements of the 2003 EU Gas Directive. The objectives of the Law are;

- To establish the legal framework for natural gas import, export, transmission, wholesale, city distribution, storage, and CNG sale, transmission and distribution
- To develop a fair, transparent and competitive natural gas market
- To unbundle market activities and eliminate the monopolistic structure in the market
- To create a market open to new entrants in all areas
- To ensure an independent regulatory and supervisory system in the natural gas market

EMRA also has formed the secondary legislation with Rules and Notifications.

Enactment of secondary legislation;

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

5.1. Monopoly Break Up and Unbundling

The law with the exception of "national transmission line" included breaking of the monopoly rights of government owned BOTAS and issued separate licenses for import, production, transmission, storage, wholesale, export and distribution activities. 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.

So as to create fair and sustainable competition, in the sectors that infrastructure is monopolized and owner of the Infrastructure Company is competing in different sections of the market, infrastructure Company is obliged to unbundling 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 to be separated legally, where as in Natural Gas Market law this is not necessary as it is indicated in article 4646. In other words, a company operating in the natural gas sector is allowed to 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).
The Law No4646 also obliges BOTAS to unbundle its transmission, storage and trade activities until 2011. Then the storage and trade activities would be privatized. Today BOTAS still has the dominant role. Today, rescheduling studies about defining the role of BOTAS is still going on by the government.

5.2. Licensing

According to the Law No 4646 licenses are required in order to engage in any natural gas market activity. Separate licenses are required for each market activity and each facility. By February 2012, EMRA has granted 243 licenses for different activities.

	Types of Licenses	
1	Total Import Licenses	**42**
	a)Import Licenses	12
	b)SPOT LNG	30
2	Export	**4**
3	Wholesale	**37**
4	Storage	**4**
5	Transmission	**1**
6	Transmission (LNG)	**22**
7	Total CNG Licenses	**71**
	a)CNG Sale	46
	b)CNG transmission and distribution	25
8	Distribution	**62**
	TOTAL	**243**

Figure5 Licensed Companies in Gas Market

5.3. Infrastructure and Third Party Access

As of in November 2011 Turkey has had a transmission system of 12.172 km of high pressure grid. As the owner of the transmission system BOTAS is responsible of allocating capacity of entry and exit points. BOTAS publishes an electronic bulletin to provide market information on reserved and suitable capacities. Capacity transfers are managed trough this bulletin.

To ensure competition in natural gas market, third-part access (TPA) to transmission and distribution infrastructure was also regulated. This was one of the difficulties that were encountered in the opening stage of the competitive market of Europe. To avoid the same difficulties in the Turkey, the law allows third party accessing to transmission infrastructure by a provided specific tariff. Rules for TPA and tariffs are set in the Network Code, which entered to force in September 2004. The law adopts a method of intervention to encourage more competition. In case of rejecting of TPA, rejected party can complain to EMRA whose decision is final and binding.

5.4. Storage

Natural gas companies who are operating in the field of wholesale and import will negotiate the terms with natural gas storage owners about accessing the storage.

Turkey has two depleted gas fields in use as underground storage in Silivri close to İstanbul which have a capacity of 2.6 bcm. It has 14 mcm injection capacity and 17 mcm withdrawal capacity per day. It was taken into use in July 2007. This plant is a joint venture between BOTAS and TPAO (Turkish Petroleum Inc.). Another facility in Tuz Golu (Salt Lake) is also being planned. This facility would provide potentially up to 5 bcm storage capacity. Engineering studies have been completed and tendering process is under evaluation.

On the other hand, there are two LNG degasification terminals in Turkey. Marmara Eregli which is owned by BOTAS has a maximum annual capacity of 8.2 bcm and in use since 1994. The other is in Izmir owned by Egegaz a private company. It has a annual capacity of 6 bcm and in use since 2006 . LNG that are produced in Algeria and Nigeria are converted to natural gas and delivered to the main system at these terminals.

5.5. Wholesale

Competition in the wholesale market has not been procured yet. This is mainly because Turkey signed long-term agreements with natural gas exporter of 6 counties. BOTAS's extreme obligation has not given any permission for additional imports. So as to protect the wholesale competition temporary article states that BOTAS's new purchase of natural gas is prohibited unless ratio of consumption falls below 20 percent in total imports of gas. In practice 4646 Law intended to limit the share of any importer or wholesaler, including BOTAS, in the domestic market to %20 by 2009. BOTAS could lower its share to %20 either by contract transfer or volume transfer to other companies. The law gave priority to contract transfers. The contract release program of BOTAS has not been fast as wanted. In November 2005 4bcm which is 12% of the total import volume is transferred to four private companies. These companies have been importing gas since 2009. For BOTAS to reduce the size of the market share to 20 percent in such a short time does not seem realistic. Changing this legal limit found to be necessary. Until today, 37 licenses were awarded. (See fig.5)

5.6. Consumption

Turkey's gas consumption has increased rapidly and in 2011 reached 39,9 billion cubic meters. Natural gas consumption in the last twenty years has increased 10 times. Indeed, per considering the latest developments, Turkey reached European averages by consuming the natural gas which account for %25 of the total energy consumption.

Gas for power generators and domestic natural gas producers has the right to choose their suppliers. EMRA is authorized to determine the threshold level for the eligible consumers. As of 2007, the threshold that is for customers pre 2001 distribution areas is defined as 1 mcm per year. In new distribution areas threshold level has been at 15mcm for the first five years of he license term. In January 2010 the eligibility threshold was decreased to 0.8 mcm in these new distribution areas. In January 2012 EMRA decreased the threshold to 0.3 mcm . EMRA determines the threshold level every year with the aim of gradually opening the market for all costumers.

Annual Gas Sales (billion cubic meter)										
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
16	17,3	20,9	22,1	26,8	30,5	35	36	32,1	31,4	39,4
http://www.botas.gov.tr/index.asp										

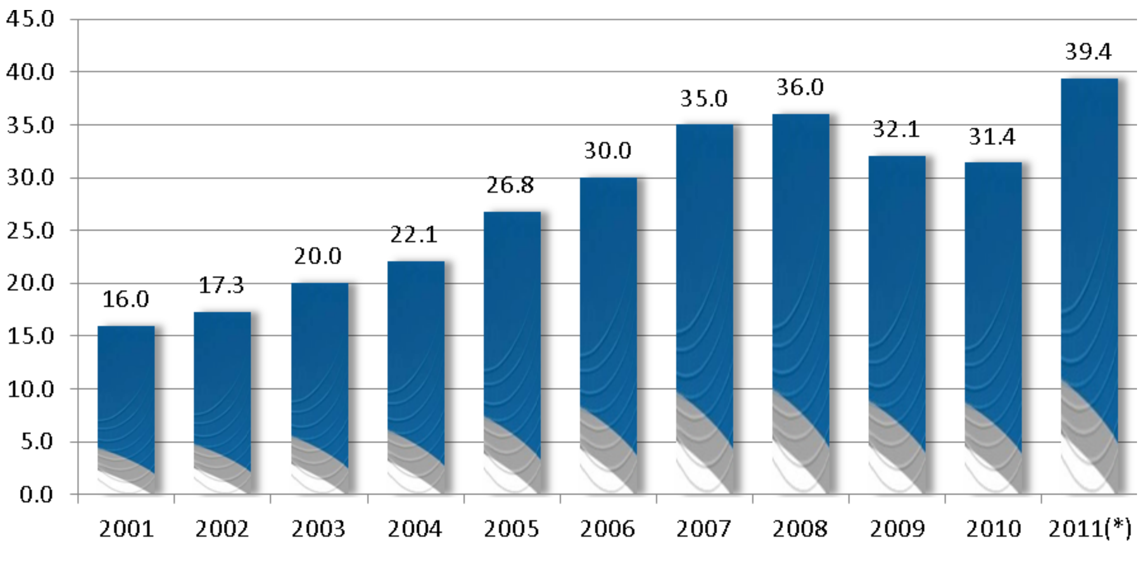

Figure6 Turkey's Annual Gas Consumption (billion cubic meters)

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 2004 is -4%, in 2005 6%; in 2006 2.93%, in 2007 -2.22%, in 2008 -1.73%.

In Turkey, gas demand peaks in winter. Winter daily demands is typically %30 to %50 higher than summer.

Increase in gas use is expected to continue in Turkey over the medium and long term to reach 61 bcm by 2020. The sectoral breakdown of consumption is expected to remain comparatively constant. That means that power generation will dominate the consumption in volume terms. Fast growth of the Turkish economy, population increase and rising living standards drives the electricity demand raising more than %50 from 2001 to 2011. According to projections the electricity demand will be more than double from 2011 to 2023. Government forecasts the share of gas-fired power to decline, with coal, hydro, wind and introduction to nuclear. Government plans to increase the share of renewable energy to %30 by 2023.

5.7. Distribution

Primary parameter of the increase in gas consumption is the use of gas consumption being spread across the nation. In 2001 where there were only 5 cities offering natural gas versus 62 distribution regions has been tendered up to present 2011. Six of these licenses were privatisation of municipality companies in Turkey's biggest cities. Today only Ankara and Istanbul distribution systems remain to be privatised.

EMRA's distribution licence tenders:

- Distribution licenses shall be granted through a tender process.
- Prequalification shall be based on financial strength and experience of the companies.
- Evaluation shall be based on the unit service and depreciation charge for supplying one kWh natural gas to consumers.
- Licenses shall be granted for a minimum of 10 and for a maximum of 30 years.
- Companies must purchase gas from at least two sources. (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.)

Building up the gas distribution quickly is all related to the success of the of distribution framework that is all provided by the private sector. 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. Companies invested over hundreds of million USD can only charge customers a unit service and depreciation charge in addition to city-gate gas price.

6. CONCLUSIONS

Turkey's gas demand has risen very fast in the past ten years and it is set to continue rising. Gas imports are multiplied by 4 from 1998 to 2011. It is expected to increase by two-thirds from 2011 to 2020. Meeting this demand for natural gas to 2020 will require very heavy investments. Turkey is well placed geopolitically with respect to major gas reserves. Turkey does not want to remain as a transit country, but aims to take a part in trades dealing with Europe. In the last decade, Turkey has joined a number of multi-state energy projects in its goal of becoming a major energy transit hub and plans to join more. Turkey should continue to work with countries along the gas transport chain to facilitate the trans-border pipeline investment and to develop new supply and transit routes. In short term Turkey should ensure measures to increase system flexibility, such as fuel switching, increased storage capacity and spot LNG. On the other hand Turkey needs to increasingly focus on the demand side (energy efficiency) as well as on the supply side in its energy security policies.

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.
The adapted model used in privatization of gas distribution has been successful. In this way, tenders have been made in 62 regions in order to distribute the gas by private companies. EMRA also needs to ensure regulatory commitment; EMRA has to introduce all necessary measures to prevent regulatory capture and regulatory failure discussed before. Furthermore, it needs to prepare and publish a plan which specifies its short, medium and long term objectives in detail so as to strengthen regulatory commitment.
The progress in some market activities remains slow than the electricity market. The market dominance of BOTAS with regard to pipeline imports and its control over the transmission line are likely to render these reforms insufficient. Implementation of contract release programme was slow and releases postponed many times. The government should revise the law to give volume transfer preference over contract transfer. Turkey Government should implement a new revised package of gas market reforms to effective unbundling of BOTAS and reduce BOTAS's market dominance.

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