NATURAL GAS MARKET

2011 SECTOR REPORT

Natural Gas Market Department

REPUBLIC OF TURKEY
ENERGY MARKET
REGULATORY AUTHORITY

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2011 SECTOR REPORT

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T.R. ENERGY MARKET REGULATORY AUTHORITY (EMRA)
Natural Gas Market Department
ANKARA, 2012

FOREWORD

As Energy Market Regulatory Authority, our main aim is to ensure effectiveness and efficiency, make appropriate and sound decisions in all our regulating and auditing activities for the market.

In the consciousness of the compulsion to have accurate and reliable market information for this purpose, we attach importance to the collection of all the data for the natural gas market by EMRA timely and accurately, as well as the analysis, reporting, and eventually sharing thereof with relevant stakeholders and the general public.

In this context, I wish this report which is prepared in the light of the information compiled from the natural gas market in 2011, would be useful for our country.

As for a brief evaluation of the contents of the report:

Having begun to be used in our country for the purpose of heating in 1980's, today natural gas has increased its effectiveness principally in power generation and in residential, industrial and other uses and become one of the important resources of the energy sector in our country.

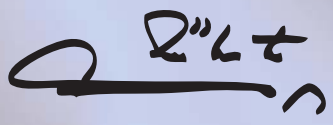
Our country has one of the most rapidly developing natural gas markets in the world. Especially in 2011, consumption has shown a significant increase of about 18% relative to the year 2010, changing the estimations made in past years.

A review of the percentages of breakdown of the natural gas consumption in 2011 reveals that the biggest share, about 48%, belongs to natural gas that is used in power generation. Considering that, natural gas use for power generation is around the level of 26% in developed countries, a revision of the issue of natural gas use in power generation and utilization of alternative resources in future years in our country is of importance.

Automation efforts have been carried on by EMRA towards the obtainment of orderly and accurate information in energy markets. Owing to this system, it is aimed to prepare information and reportings of the sectors with in the shortest possible time and more comprehensively in future years.

We would like to set forth that we are open to all types of opinions and suggestions in relation to this report we prepared.

I wish that this work would be useful for all relevant persons, institutions and organizations.



Hasan KÖKTAŞ
President

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INTRODUCTION

Due to its apparent advantages, being an energy resource with a gradually increasing share among the world's energy resources, natural gas has been subjected to important commercial currents internationally. From the point of Turkey as a developing country with rapidly growing energy requirements, it is also one of the most important elements of a rapid and sustainable economic development.

This report takes as its subject matter the conversion of the basic data about the natural gas sector, having strategic significance for our country, into tables and graphics, as well as putting forth thereof in the light of important the legal regulations that determine the structure of the sector and also national and international developments.

The basic market data obtained from relevant institutions and organizations, market participant companies and natural gas users were aligned with the analysis towards the systematic of the report and then the sector report is developed with the addition of the development process of the sector so far, as well as current and probable national and international developments that might directly be associated with the sector.

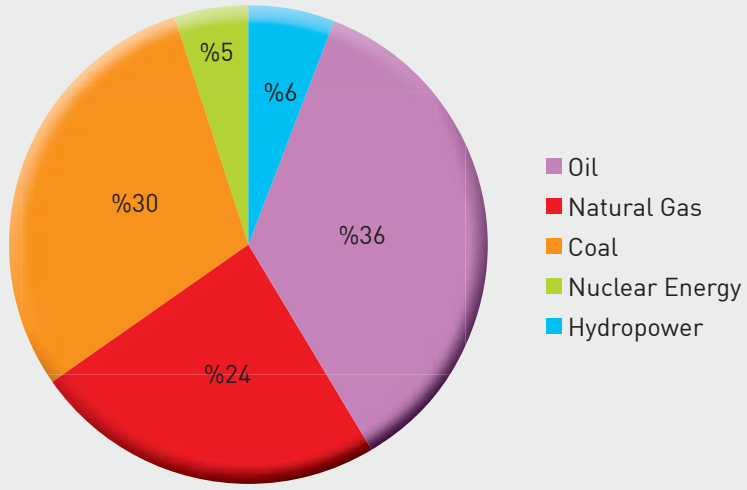
The report comprises three sections: the World Natural Gas Market, the Historical Development of the Turkish Natural Gas Market, the Current Situation of the Turkish Natural Gas Market.

THE WORLD NATURAL GAS MARKET

1

1.1 Energy Consumption & Position of Natural Gas Sector in the World

In 2010, the global energy consumption increased 5,6%, realizing the highest rise since 1973. A look at the items of oil, natural gas, nuclear energy, hydropower and coal that make up the energy basket shows that while the consumption of all energy resources increased in 2010 after the crisis of 2009, with the coal enjoying the highest rate of increase of 7,6%, the lowest rate of increase realized with oil. A breakdown of primary energy consumption in 2010 on the basis of energy resources is shown on Graph 2.



Graph 1
A Divisionis of World's Primary Energy Consumption on Energy Resources Basis in 2010

Reference:
BP Statistical Review of World Energy 2011

A regional review of the world's primary energy consumption reveals that the highest rise has realized in the Asian Pacific, including China. In all regions except the Asian Pacific, increases of consumption turned out to be below the world's average. What triggered the rise in the world's primary energy consumption 2010 is China, which has the highest share of 20,3% in the world's energy consumption. Despite the increases experienced in the United States of America (USA) and the European Union (EU) in 2010, consumption figures remained behind those in 2008. The lowest consumption increase, 3,3%, realized in the North America.

After the economic narrowing suffered in 2009, the world's natural gas consumption increased 7,4% in 2010, showing the greatest rise since 1984. A comparison of natural gas consumption figures in 2008 and 2010, neglecting 2009, the year of economic crisis, indicates to an average increase of 4,7% in the world's natural gas consumption. In terms of quantities, the greatest increase realized in USA while Russia and China enjoyed their own greatest increases in their history. In the Europe-Eurasia zone, including Turkey, however, despite in 2010 the consumption increased 7,2% with respect to 2009, the consumption figure in 2010 was lower than that in 2008.

According to the projection made by the International Energy Agency (IEA) for the period 2009-2035, a significant part of the demand is provided from oil, natural gas and coal, which energy resources will be continuing to cover the demand to a great extent in 2035 too. This triple group of fossil fuels has a share of 81% in the total energy consumption, which rate is expected to drop to 75% in 2035. It is also estimated that demand for natural gas as a fossil fuel will grow due to environmental reasons and ease of use and follow in 2035 a course in tie with coal which takes the second place after oil. The world's primary-energy consumption on energy resources basis and the consumption projection for the period 2009¬2035 are set out in Table 1.

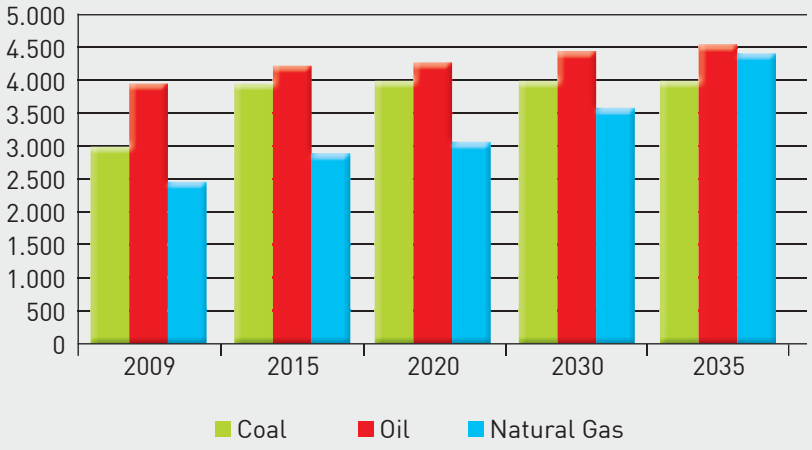
Table 1 World's Primary Energy Consumption on Energy Resources Basis and Consumption Projection

	2009	2015	2020	2030	2035	2009-2035* (%)
Coal	3.294	3.944	4.083	4.099	4.101	0,8
Oil	3.987	4.322	4.384	4.546	4.645	0,6
Natural Gas	2.539	2.945	3.214	3.698	3.928	1,7
Nuclear	703	796	929	1.128	1.212	2,1
Hydropower	280	334	377	450	475	2,1
Biogas and Garbage	1.230	1.375	1.495	1.761	1.911	1,7
Other	99	197	287	524	690	7,8
Total	**12.132**	**13.913**	**14.769**	**16.206**	**16.961**	**1,3**

* Annual average rate of increase

Reference: IEA WEO 2010 New Policies Scenario

For the purpose of clearing the predictions for the future, projections showing the energy consumption in the world has been prepared. Although the energy consumption is known to increase in the world for various reasons, the energy demand must be ascertained on the basis of countries and regions and the reasons thereof must be studied. Graph 2 sets out changes in the consumption of fossil fuels from the projection data for 2009-2035, followed by tables showing the countries and regions which assumed the primary energy consumption in the world in 2010.



Graph 2
World's Primary Energy Consumption on Energy Resources Basis and Consumption Projection

Reference:
IEA WEO 2010 New Policies Scenario

Table 2 Primary Energy Consumption Figures and Shares by Countries

	Consumption as end of 2009 (Mtep)	Consumption as end of 2010 (Mtep)	Change from 2009 (%)	Share in Total Consumption (%)
USA	2.204,1	2.285,7	3,7	19,0
Canada	312,5	316,7	1,3	2,6
Brazil	234,1	253,9	8,5	2,1
France	244,0	252,4	3,4	2,1
Germany	307,4	319,5	3,9	2,7
Italy	168,3	172,0	2,3	1,4
Spain	146,1	149,7	2,5	1,2
Russia	654,7	690,9	5,5	5,8
Turkey	101,0	110,9	9,8	0,9
Iran	205,9	212,5	3,2	1,8
S. Africa	118,8	120,9	1,7	1,0
S. Arabia	187,8	201,0	7,0	1,7
India	480,0	524,2	9,2	4,4
Indonesia	132,2	140,2	5,9	1,2
Japan	473,0	500,9	5,9	4,2
South Korea	236,7	255,0	7,7	2,1
Australia	125,6	118,2	-5,8	1,0
China	2.187,7	2.432,2	11,2	20,3
UK	203,6	209,1	2,7	1,7
World Total	**11.363,2**	**12.002,4**	**5,6**	**100,0**

Reference: BP Statistical Review of World Energy 2011

A review of Table 2 indicates that USA, China, Russia, Japan, and India takes the front places in the primary-energy consumption in the world. A review of Table 3 showing a breakdown of energy consumption by regions reveals, on the other hand, that Asian Pasific countries like China, India, Japan takes the front row. It is also determined that the countries in the Europe-Eurasia region and the North America region covering USA and Canada go in tie in energy consumption. In EU in 2010, consumption realized in 1.732,9 million tons of equivalent oil (Mtep), which corresponds to a share of 14,4% in the world's consumption.

Table 3 World's Primary Energy Consumption Figures and Shares by Regions (Mtep)

	Consumption as end of 2009 (Mtep)	Consumption as end of 2010 (Mtep)	Change from 2009 (%)	Share in Total Consumption (%)
Middle East	664,9	701,1	5,4	5,8
Europe & Asia	2.853,8	2.971,5	4,1	24,8
Africa	360,1	372,6	3,4	3,1
Asian Pacific	4.215,6	4.573,8	8,5	38,1
North America	2.683,1	2.771,5	3,3	23,1
South & Central America	585,0	611,9	4,6	5,1
World Total	**11.363,2**	**12.002,4**	**5,6**	**100,0**

Reference: BP Statistical Review of World Energy 2011

A review of the primary-energy consumption by sectors reveals that the electric generation is the sector where the use of primary-energy resources currently shows the fastest increase. The energy consumption to be realized for electric generation up to 2030 is estimated to be around 57%. Although there is a decrease in the amount of energy used for transportation in OECD countries, energy consumption for industrial purposes follows a stationary progress. In non-OECD countries and specifically in rapidly developing countries, the industry sector triggers the final energy consumption increase.

1.2 Basic Data for the World Natural Gas Market

The natural gas is estimated to become the fossil fuel to show the fastest increase in consumption in the world up to 2030. The natural gas production is expected to increase in all regions except Europe.

Asia is currently positioned as the region which has the fastest rates of increase of natural gas production and consumption, and China has the highest share of 56% in the consumption increase in this region.

The Middle East takes the second place in the ranking of rates of increase of natural gas production and consumption in the world. It is expected that the 5% share and 12% share of this region in the world natural gas consumption in 1990 and 2010, respectively, will rise to around 17% in 2030, and its 15% share in the world natural gas production in 2009 will rise to 19% in 2030.

Despite the natural gas production increase continues in the North America, it remains behind other regions in terms of the rate of increase and its 26% share in the world natural gas production in 2010 will drop down to around 19% by 2030.

In Africa, production shows a serious increase so as to cover the demand for exportation.

Non-OECD countries have a 80% share in the total consumption. The fastest increase in the demand for natural gas is seen in Asian non-OECD countries and in the Middle East.

The data for the proven natural gas reserve figures as of the end of 2009 and 2010 by countries are set out in Table 4 and the data for production figures, in Table 5.

Table 4 Natural Gas Reserves Data (trillion m^3)

	Reserves as of end of 2009	Reserves as of end of 2010	Share in Total Reserves
Russia	44,4	44,8	23,9
Iran	29,6	29,6	15,8
Qatar	25,3	25,3	13,5
S. Arabia	7,9	8,0	4,3
UAE	6,1	6,0	3,2
USA	7,7	7,7	4,1
Nigeria	5,3	5,3	2,8
Venezuela	5,1	5,5	2,9
Algeria	4,5	4,5	2,4
Indonesia	3,0	3,1	1,6
Norway	2,0	2,0	1,1

Turkmenistan	8,0	8,0	4,3
Australia	2,9	2,9	1,6
Malaysia	2,4	2,4	1,3
Egypt	2,2	2,2	1,2
Kazakhstan	1,9	1,8	1,0
China	2,8	2,8	1,5
Canada	1,7	1,7	0,9
Azerbaijan	1,3	1,3	0,7
Netherlands	1,2	1,2	0,6
Ukraine	1,0	0,9	0,5
UK	0,3	0,3	0,1
World Total	**186,6**	**187,1**	**100,0**

Reference: BP Statistical Review of World Energy 2011

Table 5 Natural Gas Production Data (billion m^3)

	Production in 2009	Production in 2010	Change from 2009 (%)	Share in Total (%)	R/P (*)
Russia	527,7	588,9	11,6	18,4	76,0
Iran	131,2	138,5	5,6	4,3	+
Qatar	89,3	116,7	30,7	3,6	+
S. Arabia	78,5	83,9	7,0	2,6	95,5
UAE	48,8	51,0	4,5	1,6	+
USA	582,8	611,0	4,7	19,3	12,6
Nigeria	24,8	33,6	35,7	1,1	+
Venezuela	28,7	28,5	-0,7	0,9	+
Algeria	79,6	80,4	1,1	2,5	56,0
Indonesia	71,9	82,0	14,0	2,6	37,4
Norway	103,7	106,4	2,5	3,3	19,2
Turkmenistan	36,4	42,4	16,4	1,3	+
Australia	47,9	50,4	5,1	1,6	58,0
Malaysia	64,9	66,5	3,7	2,1	36,1
Egypt	62,7	61,3	-2,2	1,9	36,0
Kazakhstan	32,5	33,6	3,3	1,1	54,9
China	85,3	96,8	13,5	3,0	29,0
Canada	163,9	159,8	-2,5	5,0	10,8
Azerbaijan	14,8	15,1	2,2	0,5	84,2
Netherlands	62,7	70,5	12,4	2,2	16,6
Ukraine	19,3	18,6	-3,8	0,6	50,4
UK	59,7	57,1	-4,3	1,8	4,5
World Total	**2.975,9**	**3.193,3**	**7,3**	**100,0**	**58,6**

(*) Reserves/Production ratio indicates to the number of years of reserves remaining if the current year's rate of production is carried on. A minus (+) sign in the R/P column denotes a life of reserves longer than 100 years in the corresponding country.

Reference: BP Statistical Review of World Energy 2011

The data for the proven natural gas reserves and productions in the world as of the end of 2010 by regions takes place in Table 6.

Table 6 Data for Natural Gas Reserves (trillion m^3) and productions (billion m^3) by Regions

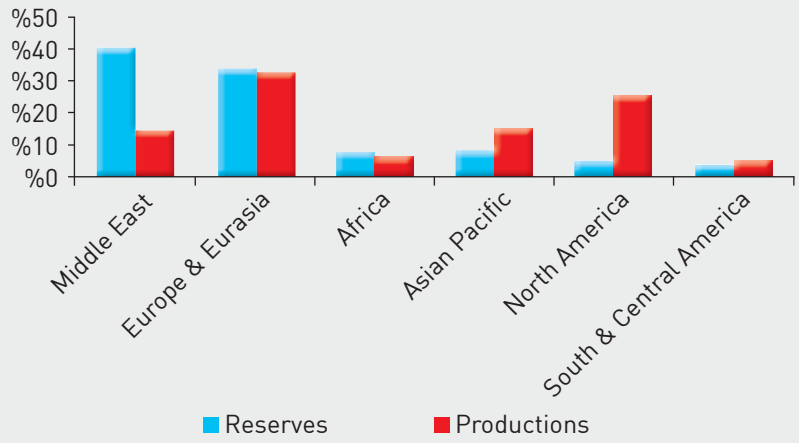
Region	Reserves as end of 2010	Share in World Total (%)	Production in 2010	Change from 2009 (%)	Share in World Total (%)
Middle East	75,8	40,5	460,7	13,2	14,4
Europe & Asia	63,1	33,7	1.043,1	7,6	32,6
Africa	14,7	7,9	209,0	4,9	6,5
Asian Pacific	16,2	8,7	493,2	10,5	15,4
North America	9,9	5,3	826,1	3,0	26,0
South & Central America	7,4	4,0	161,2	6,2	5,0
World Total	**187,1**	**100,0**	**3.193,3**	**6,9**	**100,0**
European Union	2,4	1,3	174,9	2,0	5,5

Reference: BP Statistical Review of World Energy 2011

As may be seen from a review of the data in Tables 4, 5, 6 together:

- With the largest natural gas reserves as of 2010, Russia has approximately 1/4 of the natural gas reserves in the world, and the total reserves owned by Russia, Iran, and Qatar correspond to more than one half of the world reserves.
- The sum of reserves in the Middle East region and the Europe-Eurasia region comprise 75% of the world natural gas reserves. Iran and Qatar in the Middle East region and Russia in the Europe-Eurasia region are the countries which have the largest reserves in their region.
- The sum of reserves owned by Iran and Qatar comprise approximately 72 of the total regional reserves of the Middle East.
- Approximately one half of the EU reserves consists of the Netherlands's reserves. It is predicted that, with the continuation of the current production, UK has only 4,5 years of reserves left. Norway, a non-member of EU, has however reserves near to the total EU reserves.
- After the crisis of 2009 and towards 2010, the world natural gas production increased 7,3%.
- Although USA has the highest share in the world natural gas production, it is predicted that they have less than 20 years of reserves life left. Yet it should be remembered that this figure represents a reserve obtained by conventional methods. It is however predicted that the non-conventional natural gas resources, the economic production of which started in the last 10 years in USA, would extend the reserves life to 200 years.
- Iran, Qatar, the United Arab Emirates, Nigeria, and Turkmenistan has more than 100 years of reserves life if they continue with the current production figures.
- Approximately 38% of the world natural gas production has been realized by Russia and USA.

The natural gas reserves and productions data as of the end of 2010 by regions are shown on Graph 3.



Graph 3
Natural Gas Reserves and Productions Data by Regions

Reference:
BP Statistical Review of World Energy 2011

It is seen from a review of Graph 3 created by moving from the data in Tables 5 and 6 that:

• The natural gas production realized by the Middle East region which has the largest reserves in the world only corresponds to 13,6 of the world's total natural gas production;

• The Europe-Eurasia region including Russia is the region which carries out the greatest production in the world with a figure corresponding to 32,6% of the world total;

• The North America region, including USA which has a significant share in the world's natural gas production, takes place the fifth place for purposes of reserves while takes the second place for purposes of productions;

• Russia included in the Europe-Eurasia region has 80% of the regional reserves; and

• About 43% of the world natural gas production is being realized by Russia, USA, and Canada.

Table 7 sets out the data for natural gas consumptions in 2005-2010 by countries as well as rates of change and shares in the total consumption.

Table 7 Natural Gas Consumption Data by Countries (billion m^3)

	2005	2006	2007	2008	2009	2010	Change wrt. 2009 (%)
USA	623,3	614,1	654,0	658,9	646,7	683,4	5,6
Russia	400,3	408,5	422,1	416,0	389,6	414,1	6,3
Iran	105,0	108,7	113,0	119,3	131,4	136,9	4,2
Canada	97,8	96,9	95,2	95,5	94,4	93,8	-0,6
UK	95,0	90,1	91,1	93,8	86,7	93,8	8,3
Japan	78,6	83,7	90,2	93,7	87,4	94,5	8,1
Germany	86,2	87,2	82,9	81,2	78,0	81,3	4,2
Italy	79,1	77,4	77,8	77,8	71,5	76,1	6,4
S. Arabia	71,2	73,5	74,4	80,4	78,5	83,9	7,0
China	46,8	56,1	70,5	81,3	89,5	109,0	21,8
Ukraine	69,0	67,0	63,2	60,0	47,0	52,1	11,0
Mexico	53,8	60,9	62,8	66,4	66,6	68,9	3,4
Uzbekistan	42,7	41,9	45,9	48,7	43,5	45,5	4,6

Argentine	40,4	41,8	43,9	44,4	43,2	43,3	0,4
UEA	42,1	43,4	49,2	59,5	59,1	60,5	2,5
France	44,0	42,1	42,4	43,8	42,2	46,9	11,1
India	35,7	37,3	40,1	41,3	51,0	61,9	21,5
Netherlands	39,3	38,1	37,0	38,6	38,9	43,6	12,1
South Korea	30,4	32,0	34,7	35,7	33,9	42,9	26,5
Turkey	26,9	30,5	36,1	37,5	35,7	39,0	9,2
Indonesia	33,2	33,2	31,3	33,3	37,4	40,3	7,8
Egypt	31,6	36,5	38,4	40,8	42,5	45,1	6,0
Pakistan	35,5	36,1	36,8	37,5	38,4	39,5	2,7
Malaysia	31,4	33,7	33,4	33,8	33,7	35,7	6,2
Australia	22,0	25,3	27,6	28,8	30,7	30,4	-1,2
Algeria	23,2	23,7	24,3	25,4	27,2	28,9	6,0
Turkmenistan	16,1	18,4	21,3	20,5	19,9	22,6	13,5
Qatar	18,7	19,6	19,3	19,3	20,0	20,4	2,0
Kazakhstan	26,8	28,1	26,4	27,2	24,5	25,3	2,9
Azerbaijan	8,6	9,1	8,0	9,2	7,8	6,6	-15,9
Norway	4,5	4,4	4,3	4,3	4,1	4,1	-0,5
World Total	**2.781,8**	**2.842,4**	**2.947,4**	**3.026,4**	**2.950,2**	**3.169,0**	**7,4**
European Union	494,2	486,9	481,2	489,7	458,5	492,5	7,4

Reference: BP Statistical Review of World Energy 2011

The data for the world consumptions as of the end of 2010 by regions takes place in Table 8.

Table 8 Natural Gas Consumptions in 2010 by Regions

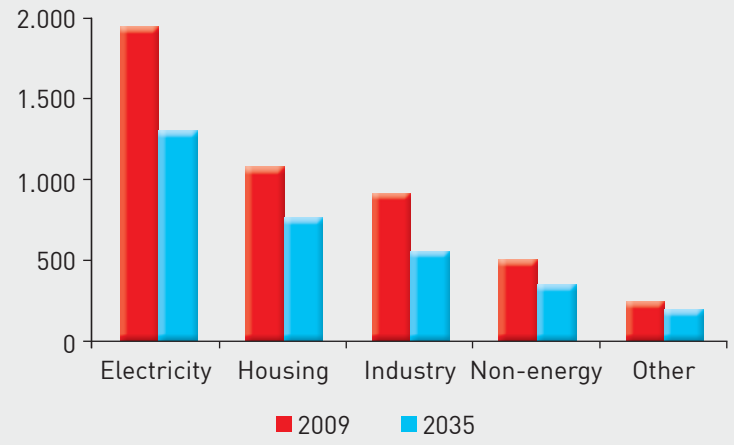
Region	Consumption (billion m^3)	Share in world total (%)	Change w.rt.t 2009 (%)
Middle East	365,5	11,5	6,2
Europe & Eurasia	1.137,2	35,8	7,2
Africa	105,0	3,3	6,1
Asia Pacific	567,6	17,9	12,6
North America	846,1	26,9	4,7
South & Central America	147,7	4,7	9,3
World Total	**3.169,0**	**100,0**	**7,4**
European Union	492,5	15,5	7,4

Reference: BP Statistical Review of World Energy 2011

According to the data in Tables 7 and 8:

- With a consumption of 683,4 billion m^3 corresponding to 21,7% of the world total consumption, USA is positioned as the biggest consumer of natural gas. The sum of the consumptions of USA and Russia comprise more than 1/3 of the total natural gas consumption in the world.
- The consumption figure of EU is 492,5 billion m^3, which constitutes 15% of the world total consumption of natural gas.
- With a percentage of 35,8, Europe-Eurasia is the region including Russia and EU where natural gas is consumed the most in the world.

Within the scope of the new policies scenario that incorporates the determinations of the International Energy Agency (IEA) for 2011, the world natural gas demand is expected to rise with an annual rate of increase of 1,7% to 4 trillion m^3 in 2035, attaining a position in tie with the world coal demand. According to the UEA's determinations for 2011, China's natural gas consumption demand will rise from a level of 110 billion m^3 in 2010 to above 500 billion m^3 in 2035. On the other hand, in the light of the UEA's determinations for 2011, the share of electricity in the world natural gas consumption is expected to increase 1,8% per year, comprising a large part of the consumption. Again in the light of the UEA's determinations for 2011, it is stated that Russia will be the biggest natural gas producer of the world with 860 billion m^3 per year, that China will be a rising natural gas producer with 290 billion m^3 per year and that natural gas production will also increase in the Middle East and Africa. It is further expressed that the natural gas demand of Europe will reach a level of 540 billion m^3 in 2035, maintaining its biggest natural gas importer position, that China as a market will have the most rapidly increasing natural gas demand and that the natural gas supply and demand in the North America is seen in equilibrium.



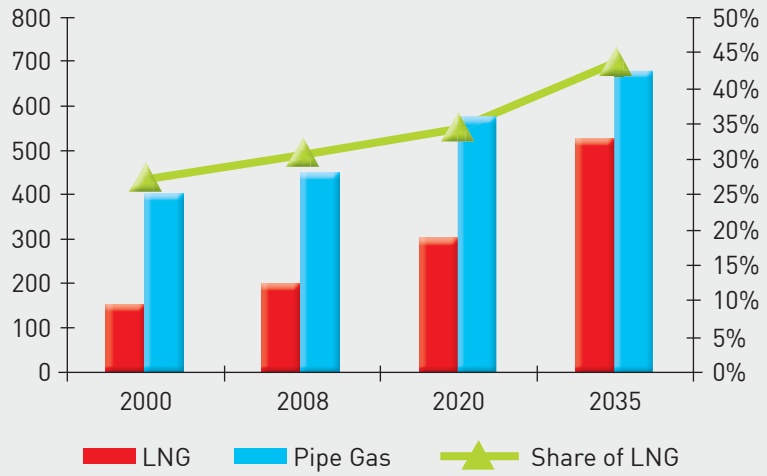
Graph 4
Natural Gas Demand in the World by Sectors (billion m^3)

The Other includes other sectors such as transportation, agriculture, etc.

Reference:
IEA WEO 2011 New Policies Scenario

As may be seen from Graph 4, natural gas is mostly used for the purpose of electric generation in the world.

As an alternative to natural gas conveyed by means of pipelines with the expansion of the world natural gas trade, the share of LNG is believed to gradually increase as may be seen from Graph 5. Besides the LNG trade, regulations for which are currently being carried on, non-conventional energy resources (shale gas, gas obtained out of low-permeable rocks, gas of coal origin, etc) which attract attention with plenty of reserves, take place as new alternatives in the natural gas market.



Graph 5
World Natural Gas Trade in Pipe Gas and LNG (billion m3) and Share of LNG

Reference:
IEA WEO 2010 New Policies Scenario

1.3 European Union Natural Gas Market

Due to its "environmentally friendly" properties and highly effective application technologies, natural gas continues to be a preferable type of fuel and is thus expected to increasingly contribute to the energy supply sector in EU-member countries. As a fuel functioning as a bridge for providing a sustainable energy resource, natural gas will have a significant role in the coming years.

In the future twenty-five years, fossil energy resources will continue to be the backbone of the European energy supply. Natural gas is an important resource in the meeting of the EU's energy requirements. For the natural gas, which suffered a narrowing in EU energy markets with the economic crisis in 2009-2009, a staged recovery process is expected in future years, as may be seen from Table 9.

Table 9 EU Gas Balance Scenario (billion m^3)

	2009	2015	2020	2025	2030	2035	2009-2035* (%)
Demand	508	572	593	608	626	629	0,8
Production	196	174	145	122	103	89	-3,0
Net Imports	312	398	448	486	523	540	2,7

* Annual average rate of increase

Reference: IEA WEO 2011 New Policies Scenario

1.3.1 Regional Relations

1.3.1.1 Energy Regulators Regional Association (ERRA)

Being an organization based on voluntary participation, the Energy Regulators Regional Association (ERRA) is en entity basically consisting of independent regulatory authorities of European and Eurasian countries, also including participants from Asia, Africa, the Middle East, and USA. At the beginning, ERRA started as an organization that provides cooperation with 12 energy regulator authorities. In The National Association of Regulatory Utility Commissioners (NARUC) has been holding technical forums, meetings and study trips for energy regulators in cooperation with the United States Agency for International Development since 1999. During these meetings, participants stated that

they needed an organization like NARUC which would provide an official platform for the sharing of learnings and ideas to make use of the experience of one another on organization. As a result of this, on 15th of December 2000, 15 members signed the Founders' Agreement for the Energy Regulators Regional Association (ERRA) in Bucharest. Today, ERRA is consisted of 23 full members, 3 reserve members and 6 candidate members. This organization is officially registered in Hungary and its secretariat is operating in Bucharest. NARUC and USAID are continuing to support the functioning of ERRA.

1.3.1.2 Council of European Energy Regulators (CEER) - European Regulators' Group for Electricity and Gas (ERGEG) - Agency for the Cooperation of Energy Regulators (ACER)

CEER is the EU-wide and international spokesman of the European national electricity and gas regulators. Being a non-profit organization, CEER's basic goal is to help in the development of a single, competitive, effective and continuous market that would serve the public benefit. This organization aims at the establishment of a cooperation between national regulators and the sharing of their **'best practices'**[1].

CEER has been founded under the **'Third Legislation Package'**[2] for the liberalization of the European energy market. Starting operations on 3 March 2011, CEER is in close cooperation with ACER and has common goals with them.

ACER has a key role in the integration of the EU electricity and natural gas market. ERGEG, founded in November 2003 with the European Union Resolution, is a pioneer organization to ACER. With the actual commencement of ACER, some powers of ERGEG have been delegated to ACER and some others, to CEER.

ACER has the mission of supplementing and coordinating the duties of National Regulatory Authorities at EU level. Basic duties of ACER include the elaboration of a draft guide which would constitute a base for a network legislation applicable throughout EU, the making of decisions in an individually binding manner on issues not agreed on by national regulatory authorities and the submission of energy-related recommendatory opinions to European Institutions on miscellaneous issues.

1.3.1.3 Association of the Mediterranean Regulators for Electricity and Gas

MEDREG aims at the development of a transparent, stable and compatible regulatory frame in the Mediterranean region to provide maximum benefit to energy consumers. The Presidency of MEDREG is being performed by the Head of the Natural Gas Market Department of the Turkish Energy Market Regulatory Institution (EMRA). The efforts being currently carried on include the review of transparency of the markets of member countries, elaboration of the basic principles for providing third parties with fair access to networks and analysis of the possibilities for the development of the trans-border infrastructure. EMRA provided participation for the meetings of the MEDREG Natural Gas Ad Hoc Group and contribution to their reporting in 2011 too. In this context, the eight meeting of the MEDREG Natural Gas Ad Hoc Group was held at EMRA on 28 April 2011. The transparency, infrastructure and third-party access conditions were discussed at that meeting.

1.3.1.4 International Confederation of Energy Regulators (ICER)

The International Confederation of Energy Regulators (ICER) is an organization that aims at the establishment of a cooperation among energy regulators all throughout the world. Members of this organization, founded on 19.10.2009 include 200 regulatory authorities, spreading over 6 continents. ICER is currently being managed by the president of CEER.

[1] So called in the literature.
[2] Directive 2009/73/EC

The vision of ICER is the provision of a ground for cooperation among energy regulator institutions at scales likely to relate to the world energy markets.

The mission of ICER is to inform the public about and create awareness on the energy regulator institutions' monitoring activities for electricity and natural gas markets and their efforts on the protection of consumers rights, develop of a platform to serve common goals and values, provide contribution to the sustainability process, and conciliate the market mechanism and public service interests. In this context, ICER aims to undertake initiatives such as the provision of cooperation by means of continuous communication and exchange of information among members and the organization of training activities.

The main topics focused on by ICER include the supply security, the role of regulatory authorities against a climatic change, competitiveness, purchasing power, independence, powers, responsibilities, best-practice methods, and the information of regulator authorities. The issue of energy regulation by means of ICER crosses regional and national borders and is determined via dialogues and cooperation at a global level. Under the umbrella of ICER, ERRA and MEDREG also take place, to which EMRA is also a member.

1.3.2 Developments on the European Union Natural Gas Market Legislation in 2011

1.3.2.1 EU Regulation for the Watching of Wholesale Markets

The EU electricity and natural gas markets are being more liberalized and becoming more interrelated day by day. Therefore, the probability of misuses and manipulations is increasing.

On 10 October 2011, the EU Council has adopted a regulation about the integrity and transparency of the energy market. This new regulation determines guidelines and requirements for the watching of wholesale markets to effectively identify and prevent market misuses and manipulations and ensure an integrity and transparency for these markets. In the context of this regulation, a market watching mechanism is being installed for operation by ACER. By acting in close cooperation with national energy market regulatory boards, ACER will monitor and audit electricity and natural gas wholesale activities. Within this scope, ACER collect the information and data needed for the assessment and monitoring of wholesale markets. In addition to these, it is envisioned to establish an European Registration Office within ACER basing on the information for the energy market provided by national regulatory institutions.

In relation to the breach of the said regulation, member countries have to introduce proportional, effective and deterrent sanctions corresponding to the gains obtained in the context of market manipulation and the losses inflicted to consumers.

1.3.3 Developments for Natural Gas Pipeline Projects in 2011

AS a result of the negotiations which have been carried out between Turkey and Azerbaijan for about 3 years, an agreement for the purchasing and conveyance of gas from Azerbaijan in the context of the Trans-Anatolia pipeline project was signed on 25 October 2011. Planned to begin to serve in early 2018, this Trans-Anatolia pipeline project is quite important for the purpose of meeting natural gas requirements of both Turkey and Europe. The pipeline project is highly important also in that the gas to be extracted from Şah Deniz (Shah Sea) will be the first gas to be carried over to Europe from the Caucasus as an alternative to the Russian gas. It is planned to use in Turkey 6 billion m^3 of the total 16 billion m^3 of natural gas to be extracted from Şah Deniz and convey the remaining 10 billion m^3 of gas through Turkey to Europe. Thus, Turkey will have the position of a strategic country for the purpose of energy security of Europe.

HISTORICAL DEVELOPMENT OF THE TURKISH NATURAL GAS MARKET

2

2.1 Utilization of Natural Gas

In Turkey, the natural gas which has been discovered in Hamitabat and Kumrular by the Turkish Petroleum Corporation (TPAO) in 1970, was first used in Pınarhisar Cement Plant in 1976.

In order to increase the share of natural gas as an alternative energy resource in the meeting of growing energy requirements in Turkey in association with the population growth and industrialization and to find a solution to the air pollution that has been gradually concentrating in some cities, following the signing of an agreement between Turkey and the Union of Soviet Socialist Republics (USSR) about the delivery of the of natural gas on 18.09.1984, a natural gas purchase-sale agreement with a plateau value of 6 billion Cm^3 per year and a duration of 25 years has been signed on 14.02.1986 between the Petroleum Pipeline Corporation (BOTAŞ) and SOYUZGAZ EXPORT which is an organization from USSR authorized on natural gas trade. The first purchase agreement with USSR was followed by other purchase agreements made to meet increasing natural gas requirements.

Table 10 Natural Gas Purchase Contracts

Contract	Quantity (*)	Contract Date	Time (Year)	Years of Gas Delivery Commencement
Russian Federation (Westward) (**)	6	14.02.1986	25	1987
Algeria (LNG)	4	14.04.1988	20	1984
Nigerya (LNG)	1,2	09.11.1995	22	1999
Iran	10	08.08.1996	25	2001
Russian Federation (Blue Stream)	16	15.12.1997	25	2003
Russian Federation (Westward)	8 (***)	18.02.1998	23	1998
Turkmenistan	16	21.05.1999	30	-
Azerbaijan	6,6	12.03.2001	15	2007

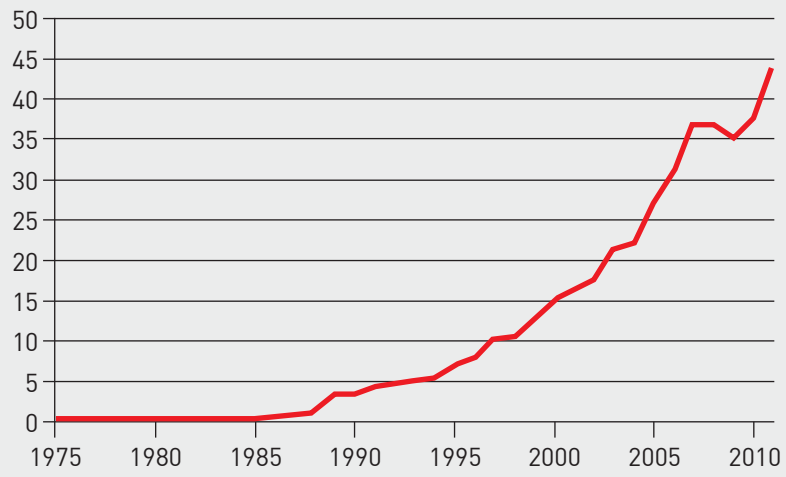
(*) Denotes the plateau value (billion Cm^3/year)

(**) Contract has terminated as of 31.12.2011.

(***) The 4 billion Cm^3/year portion of the purchase-sell contract of BOTAŞ dated 18.02.1998 has been transferred under Temporary Article 2 of the Law No. 4646.

After the purchase and sale agreement made on 14.02.1986, the 842 km long Russian Federation-Turkey Natural Gas Pipeline began to be constructed on 26.10.1986 and entered Turkey at the locality of Malkoçlar on the Turkey-Bulgaria border, reaching Hamitabat on 23.06.1987, and then followed the route of Ambarlı, İstanbul, İzmit, Bursa, and Eskişehir finally reached Ankara in August 1988. By means of this natural gas pipeline, natural gas was transmitted to Hamitabat and Ambarlı natural gas combined cycle power plants located in the Thrace Region, to the fertilizer facilities of İGSAŞ (Istanbul Fertilizer Industry, Inc.) and TÜGSAŞ (Turkish Fertilizer Industry Co.) as well as the cities located on the route of the natural gas pipeline. Natural gas was supplied for use of the residential and commercial sectors in Ankara in October 1988, in İstanbul in January 1992, in Bursa in December 1992, in İzmit in September 1996 and in Eskişehir in October 1996.

From the year of start of generation which is 1976, till the year of start of import which is 1987, a limited amount of 747 million m^3 for generation and consumption has been achieved totally. At the end of 2011, the natural gas consumption attained 44,145 billion Sm^3. Natural gas consumptions between 1975 and 2011 are seen on Graph 6.



Graph 6
Natural Gas Consumption in 1975-2011 (billion Sm^3)

Reference:
DEK-TMK Enerji Raporları

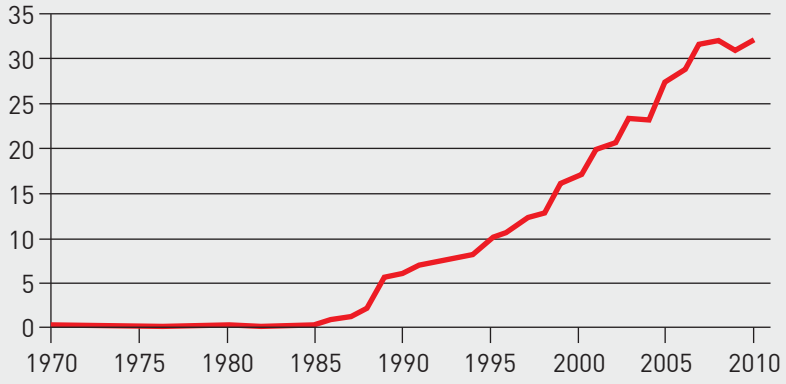
While the share of natural gas in the total energy consumption was negligible in between 1976 and 1987, it showed an increase in parallel with the amount of consumption. Shares of resources in the total energy consumption of Turkey between 1975 and 2010 are given in Table 11.

Table 11 Shares of Resources in Total Natural Gas Consumption of Turkey in 1975-2011 (%)

	1975	1980	1985	1990	1995	2000	2005	2010
Natural Gas	0	0,1	0,2	5,9	9,9	17,1	27,3	31,9
Oil	51,7	50,3	46	45,1	46	40,1	35,2	26,7
Coal	21,5	22,1	21,4	30,9	27,2	30	26,4	30,6
Hydroelectric	1,9	3,1	2,6	3,8	4,8	3,3	3,7	4,1
Other	24,9	24,4	29,8	14,3	12,1	9,5	7,4	6,7

Reference: DEK-TMK Energy Reports

The development of the share of natural gas in the total energy consumption in 1975-2010 is given on Graph 7.



Graph 7
Share of Natural Gas in Total Energy Consumption in Turkey in 1975-2011 (%)

Reference:
DEK-TMK Energy Reports

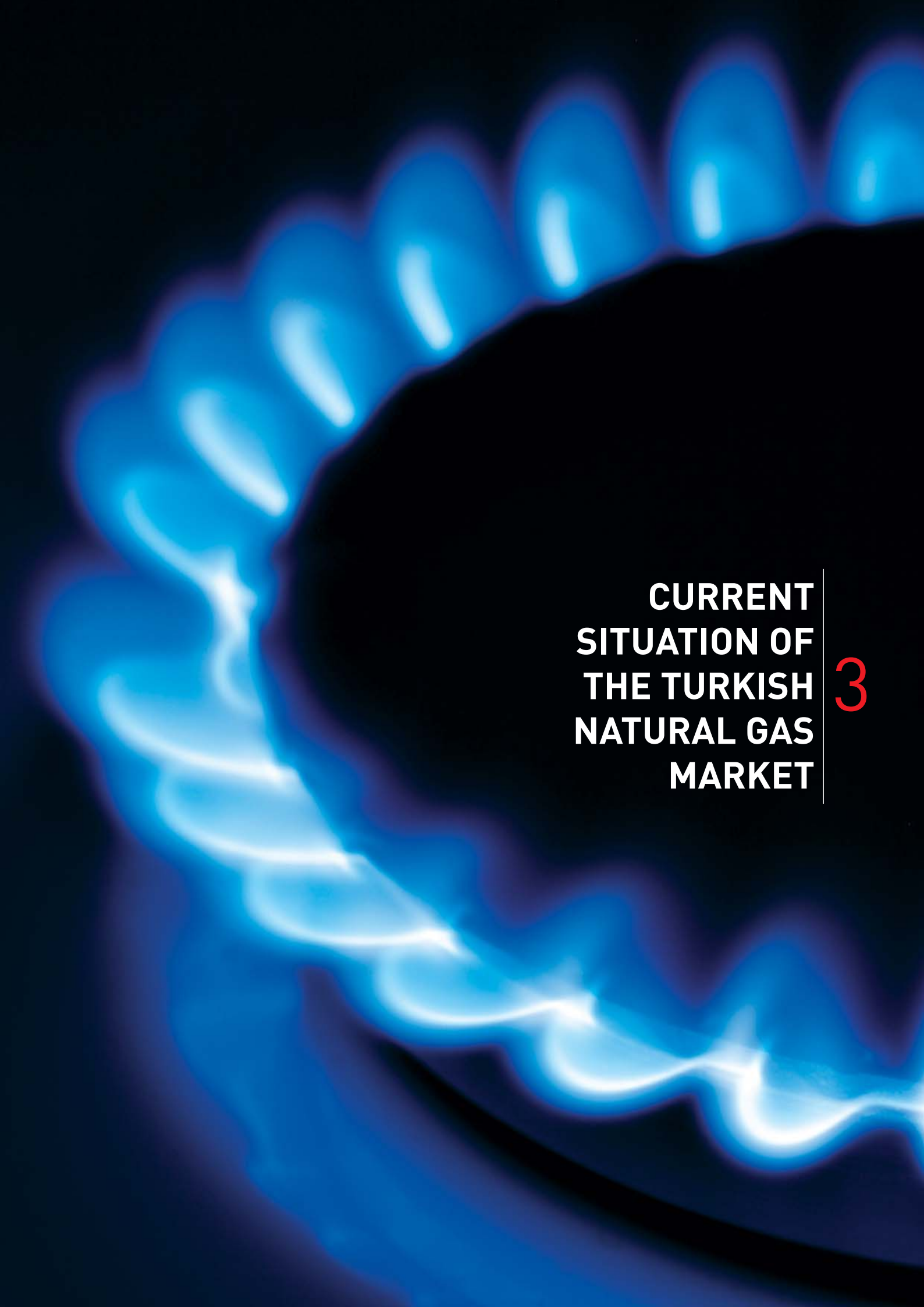
2.2 Legal Process

The legal process of the Turkish natural gas sector has begun in 1988 with the effectiveness of the Statutory Decree No. 350. Basing on this Statutory Decree and the Decree No. 7/781, BOTAŞ[3] has been established on 15.08.1974 as a subsidiary of TPAO, in order to carry out the activity of transporting crude oil through pipelines and identified as only foundation authorized for the import of natural gas. Under the Statutory Decree No. 397 dated 02.01.1990 concerning the Utilization of Natural Gas, the Statutory Decree No. 350 has been repealed and BOTAŞ has been authorized for natural gas import (including its liquefied state), sales and pricing and also the distribution in Turkey.

In the period of time up to the abolishment of the Statutory Decree No. 397 under respective article of the Natural Gas Market Law No. 4646 ("Law") dated 02.05.2001, the activities of import, wholesale, transmission and also distribution of natural gas in the cities of Bursa and Eskişehir were carried out by BOTAŞ. However in the cities of Ankara, İzmit, and Adapazarı, the natural gas distribution was carried out by EGO (Ankara), İGDAŞ (İstanbul), İZGAZ (İzmit), and AGDAŞ (Adapazarı), which are municipality owned companies.

Having become effective as required for adaptation to the EU criteria and for the process of integration with the global economy, the Law started the process for the extensification of the utilization of natural gas throughout Turkey which has gradually become more attractive against alternative energy resources, the regulation in order to ensure supply of natural gas to consumers in good quality, inexpensive and ceaseless manner and also restructuring of natural gas market under competitive conditions. Within this framework, by the Law, it is aimed for the transition of the market structure including a public enterprise, BOTAŞ, which has monopolistic rights, into a structure including liberalization of the market activities having competitive elements and a structure that is going to provide the supervision and audit of the market activities in case of fields that do not have competitive elements. On the other hand, with the Natural Gas Market Law No. 4646, the regulation and auditing of the natural gas market are added to the field of duties of the Electricity Market Regulatory Authority which is established under the Electricity Market Law No. 4628 dated 03.03.2001 and also Authority's name is changed as Energy Market Regulatory Authority.

[3] Under the Council of Ministers' Decision No. 95/6526 dated 08.02.1995, it was decided to put BOTAŞout of the status as a Subsidiary of TPAO and restructure it as a state-owned economic enterprise.



3 CURRENT SITUATION OF THE TURKISH NATURAL GAS MARKET

The Law that constituted the legal background of the Turkish natural gas market, provided for the restructuring of vertically integrated structure of BOTAŞ into a horizontally integrated legal entity except its distribution activities and the privatization of its companies (storage and trade) other than the one involved in transmission activities. With the Law, it was set forth for privatization of urban distribution companies and assets which are owned and operated by BOTAŞ at the period of the issue of th Law and also identification of private companies by a tendering process which are going to act in the new distribution regions. In addition, activities of import, transmission, storage, wholesale, export and distribution of natural gas, as well as distribution and transmission of compressed natural gas (CNG) were deemed as market activities for which licensing was made mandatory.

The Law concerns with liberalization of the natural gas market and thus formation of a financially sound, stable and transparent markets along with institution of an independent supervision and control mechanism over the same, so as to ensure supply of good-quality natural gas at competitive prices to consumers in a regular and environmentally sound manner under competitive conditions.

3.1 Generation

The natural gas exploration and generation 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 generation activities are not regarded as market activities under the Law, the generation companies, provided that they hold a wholesale license, may market the natural gas they have genereated 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. Furthermore, the generation companies may export the natural gas they have produced provided that they hold export license.

In this context, the natural gas produced in the Southeastern Anatolia, Thrace and Western Black Sea regions by:
- TPAO,
- Amity Oil International Pty Limited (based in Australia), Istanbul Branch in Turkey,
- Thrace Basin Natural Gas Corporation, Istanbul Branch in Turkey,
- Foinavon Energy Inc (based in Canada), Ankara Branch in Turkey,
- Tiway Turkey Limited, Ankara Branch in Turkey,
- Petrol Ofisi Arama Üretim Sanayi ve Ticaret A.Ş.,
- Transatlantic Exploration Mediterranean Int. Pty. Ltd. (based in Australia), Istanbul Branch in Turkey
- Petrogas Petrol Gaz ve Petrokimya Ürünleri İnşaat Sanayi ve Ticaret A.Ş.

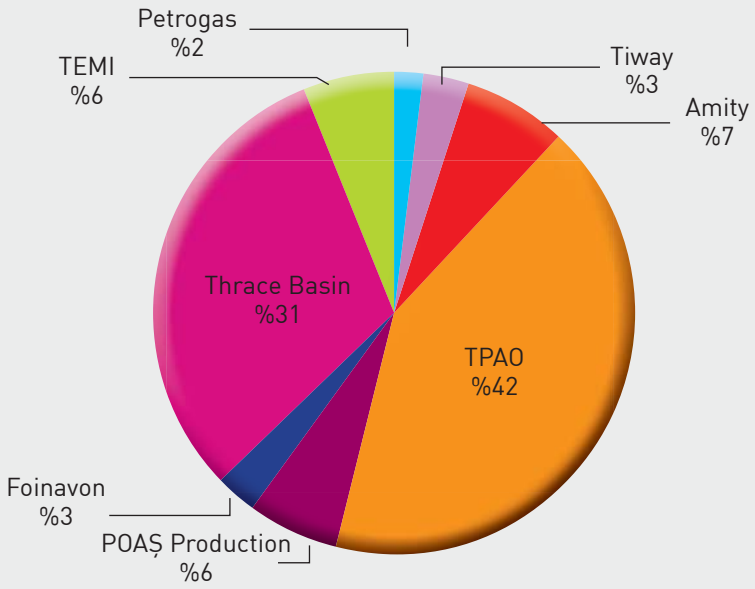
are supplied to industrial and commercial corporations that are present in their natural gas production regions, distribution companies and wholesale companies.

Natural gas productions by years are given in Table 12. .

Table 12 Natural Gas Productions between 2006-2011 (million Sm^3)

Years	2006	2007	2008	2009	2010	2011
Quantity	948	874	969	687	682	760

A significant part of the natural gas production of 760 million Sm^3 carried out by wholesale-licensee generation companies in 2011 was accomplished by TPAO and Thrace Basin Natural Gas Corporation. Production shares of wholesale-licensee production companies are shown in Graph 8.



Graph 8
Production Shares of Wholesale-Licensee Production Companies in 2011

3.2 Import

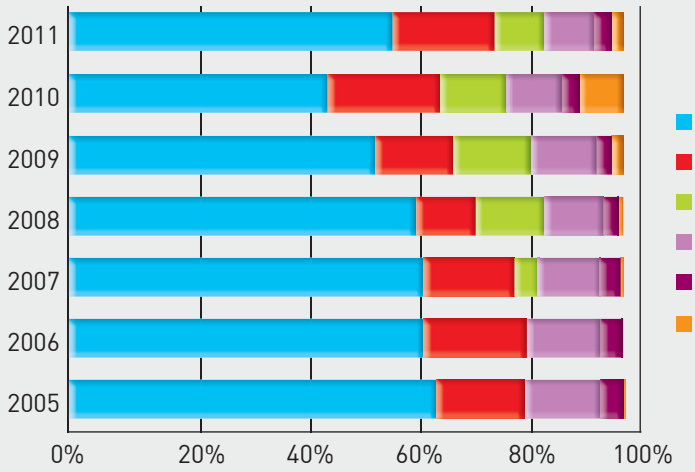
From the introduction of natural gas in 1970's, with the gradual increase in its rate and fields of use in parallel to the growth in the energy demand because of its advantages, and due to the quite limited levels of domestic reserves and productions, in order to meet the current and potential natural gas demand, made the import of natural gas mandatory for Turkey.

The imports that have taken place between 2005-2011 on the basis of countries of origin are given in Table 13.

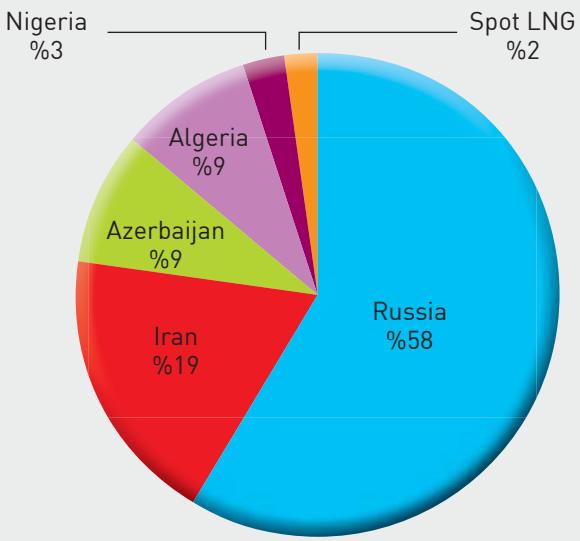
Table 13 Natural Gas Imports between 2005-2011 (million Sm^3)

Years	Russia	Iran	Azerbaijan	Algeria	Nigeria	Spot LNG	Total
2005	17.524	4.248	0	3.786	1.013	0	**26.571**
2006	19.316	5.594	0	4.132	1.100	79	**30.221**
2007	22.762	6.054	1.258	4.205	1.396	167	**35.842**
2008	23.159	4.113	4.580	4.148	1.017	333	**37.350**
2009	19.473	5.252	4.960	4.487	903	781	**35.856**
2010	17.576	7.765	4.521	3.906	1.189	3.079	**38.036**
2011	25.406	8.190	3.806	4.156	1.248	1.069	**43.874**

As may be seen from Table 13 and Graphs 9 and 10, our country is significantly dependent to import for supplying natural gas, and dependent to Russia for import substantially.



Graph 9
Change of the Shares of Sources of Imports between 1999-2011



Graph 10
Turkey's Natural Gas Imports in 2011 on the basis of Source Countries

3.2.1 Import via Pipelines

Subsequent to the first purchase contract signed with Russia in 1986 for 6 billion m^3 per year of natural gas, in order to meet the growing amount of consumption, the purchase of natural gas continued under other purchase contracts signed with Russia (Additional Westward Line), Iran, and again Russia (Blue Stream Line) chronologically. Within the scope of the purchase contract signed on 12.03.2001, natural gas has also been started to be purchased from Azerbaijan since 2007. Thus, currently, except the contract signed with Turkmenistan in 1999 because it does not became valid yet, natural gas imports are being implemented via pipelines under long-term natural gas purchase contracts from 3 different countries in Turkey.

The natural gas purchase sell contract that was signed on 14.02.1986, between BOTAŞ and Gazprom Export Limited

Liability Company for natural gas importation from the Russian Federation has terminated as of 31.12.2011. Within this scope, by the Decision No. 3475/8 dated 26.10.2011 taken by the Energy Market Regulatory Board ("Board"), the Import License No. DİT/131-09/012 dated 18.04.2003 owned by BOTAŞ in accordance with the relevant legislation, has been terminated.

In this context, the Board Decision No. 3476 dated 26.10.2011 has been taken in line with the main objective to enable the issue of import licenses as a basis for the new contract(s) to be made from the termination date of the contract in accordance with BOTAŞ' Import License No. DİT/131-09/012 dated 18.04.2003 and for that purpose in order to form a competitive structure in the natural gas market, all in line with the provisions of Temporary Article 2 of the Law for the importation to be executed from countries with which contracts are made by BOTAŞ.

Under Article 4 of the Board Decision No. 3476 dated 26.10.2011 as put into force after the issue thereof on the Official Gazette No. 28098 dated 28 October 2011, applications for the import licences were made by 26 legal entities. Since however those legal entities failed to submit a purchase-sell contract to EMRA within the time, therefore under the provision of the Law concerning one of the required conditions that are deemed for the legal entities to obtain import licenses, which is **"Availability of definite information and guarantee regarding the source, reserves, generation facilities and transmission system of the natural gas to be imported"**; all applications have been rejected.

3.2.1.1 Contract Transfers

The contract assignment mechanism provided under the Law, has begun to be operated by BOTAŞ by conducting 6 different tenders for 6 purchase contracts on 30.11.2005. At those tenders, with 64 lots of 250 million Cm^3 each corresponding to a total portion of 16 billion Cm^3 subjected to transfer, however, some of the bids were deemed invalid as bidders failed to submit preliminary approvals. Only 4 of the bids submitted for the transfer of Natural Gas Purchase-Sell Contract for 16 lots (4 billion Cm^3/year) dated 18.02.1998 were deemed valid. A list of best bids which has ranked by BOTAŞ is shown in Table 14.

Table 14 Contract Transfers (million Cm^3) (*)

Licensee	Quantity
Shell Enerji A.Ş.	250
Bosphorus Gaz Corporation A.Ş.	750
Enerco Enerji San. ve Tic. A.Ş.	2.500
Avrasya Gaz A.Ş.	500

(*) Quantity based on the upper calorific value of 9.000 kcal/m^3.

The companies mentioned, started import activities, including Shell Enerji A.Ş. in 2007, Bosphorus Gaz Corporation A.Ş. on 3 January 2009, Enerco Enerji Sanayi ve Ticaret A.Ş. and Avrasya Gaz A.Ş. in April 2009.

In the context of the studies being carried out for the transfer of Natural Gas Purchase-Sell Contracts to third parties in which BOTAŞ is the purchaser, among the Import Contracts under which gas supply has been continuing, tender announcement for the transfer of the 6 billion Cm^3/year portion of the 16 billion Cm^3/year Natural Gas Purchase-Sell Contract which has been signed between Gazprom Export LLC and BOTAŞ on 15.12.1997, was published in the Official Gazette No. 27933 dated 13.05.2011 and on the website of BOTAŞ as well.

In order to hold tenders by BOTAŞ for transfer of contracts, with regards to partial or complete transfer of the existing natural gas purchase or sale contracts along with all rights and liabilities, in the context of the Board Decision No.

3285 date 22.06.2011 concerning the identification of companies who are qualified for the import license and the license applications submitted to EMRA as a result of those tenders, legal entities have applied to EMRA so as to attend in the tender for the mentioned contract transfer that was going to be hold by BOTAŞ. As a result of the examination of EMRA, BOTAŞ is informed about the qualified legal entities; however, since no legal entity submitted a bid for the tender, the tender for the contract transfer could not be concluded.

3.2.2 Import of Liquefied Natural Gas (LNG) and Spot LNG

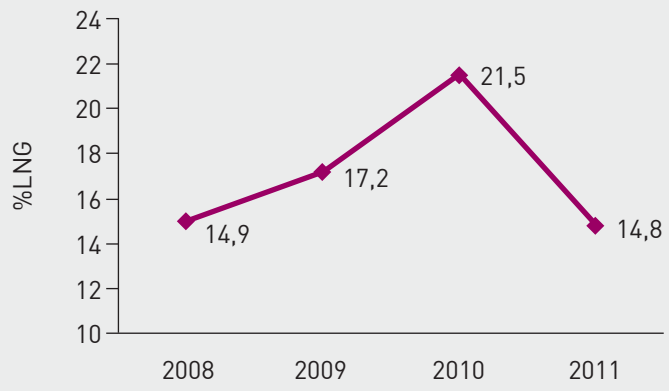
In cases where it is not possible to transmit natural gas via pipelines technically or economically, the natural gas is cooled down to -162° C to liquidize it and the resulting liquefied natural gas (LNG) with a volume shrunk up to 600 times are transported by specially manufactured tanker vehicles.

In order to diversify sources of supply to improve the security of supply and flexibility of procurement, LNG began to be purchased by BOTAŞ from Algeria since 1994 under a purchase contract signed in 1988 and from Nigeria since 1999 under a purchase agreement signed in 1995.

Decrease in the natural gas supply through the Westward Line due to the natural gas crisis occurred between Russia and Ukraine in 2006, outage of the exported natural gas in winter months by Iran, on account of the fact that technical problems and they could not meet their domestic consumption, and also lack of sufficient storage capacity, caused Turkey to suffer a shortage of natural gas supply through pipelines.

Because of the reasons arising from supplier and transit countries and technical reasons, situations where; supply of the natural gas being below the daily gas contract values, especially in winter months and as a result problems experienced in manintaining daily supply-demand equilibrium, were confronted. On the other hand, the import of LNG was set free for BOTAŞ and other market participants and the activity of import (spot LNG) which has not been regulated by the Law beforehand was subjected to regulation, under the Law No. 5784 dated 09.07.2008 named **"Law On Amending On The Electricity Market Law and Some Laws"**. In addition, importing from multiple countries holding one single import (spot LNG) license was enabled.

There are two LNG terminals which are used for the storage, gasification and transmitting of the LNG purchased from Algeria and Nigeria under long-term contracts and also from the spot market. One of them is the Marmara Ereğlisi LNG Terminal being owned and operated by BOTAŞ, the construction of which began after an agreement made with Algeria and which was taken into operation in 1994, and the other one is the Ege Gaz A.Ş. LNG Terminal which was planted at Aliağa by Ege Gaz A.Ş in 2001 and which began to be operated in 2006.



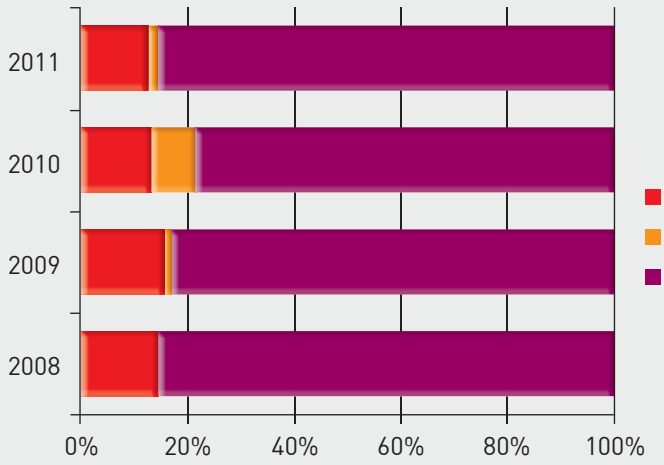
Graph 11
Shares of LNG Consumption in National Natural Gas Consumption in 2008-2011 (%)

A review of the condition of LNG imports occurred under both spot and long-term contracts since 2008 reveals that, in 2008 14,9% of the national natural gas consumption was covered by LNG, it was increased up to 17,2% in 2009 and 21,5% in 2010. In 2011, however, the ratio of the natural gas consumption that is met by LNG is decreased to 14,8%. This situation is given in Graph 11.

In 2011, an increase is observed in the LNG demand in the world. Reasons such as the use of LNG to cover the nuclear energy losses that arose especially in connection with the earthquake and tsunami that has occurred in Japan, besides increased demands for LNG in connection with the economic growth in China and India have caused increases in the LNG demand and thereby in LNG prices. On the other hand, increased insurance premiums and rentals of LNG tanker vehicles as a result of the nuclear leakage that has occurred after the earthquakes in Japan; especially the leakage of radiant water into the sea in the Far East, have also raised LNG costs and thereby LNG prices.

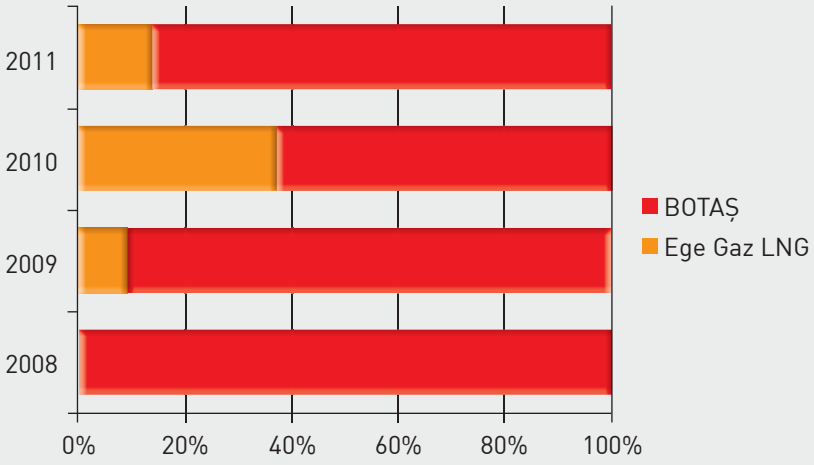
It is interpreted that the issues mentioned above have caused a drop of LNG imports realized in our country.

A comparison of the ratio of the national natural gas consumption covered by LNG on the basis of companies indicates that, 14,9% of the national natural gas consumption was met by BOTAŞ in 2008, the ratio has increased to 15,8% in 2009 and then devreased to values around 13% in 2010 and 2011. Likewise, Ege Gaz A.Ş. met 1,5% of the national natural gas consumption with the LNG they brought for the first time in 2009, the ratio has increased to 8,1% in 2010 and then decreasded to 2% in 2011. This situation is given in Graph 12.



Graph 12
Change of Shares of LNG and Pipe Gas Imports in 2008-2011

When LNG imports carried out by BOTAŞ and Ege Gaz A.Ş. in Turkey is interpreted entirely, it is seen that, in 2008, the whole of the import of LNG was carried out by BOTAŞ, in 2009, the 91,5% of import LNG was provided by BOTAŞ and the 8,5% by Ege Gaz A.Ş. It is further determined that, in 2010 the 62,5% of import LNG was procured by BOTAŞ and the 37,7% by Ege Gaz A.Ş. and finally in 2011, LNG that was imported by BOTAŞ is 86,2% and by Ege Gaz A.Ş. is 13,8%. This situation is given in Graph 13.



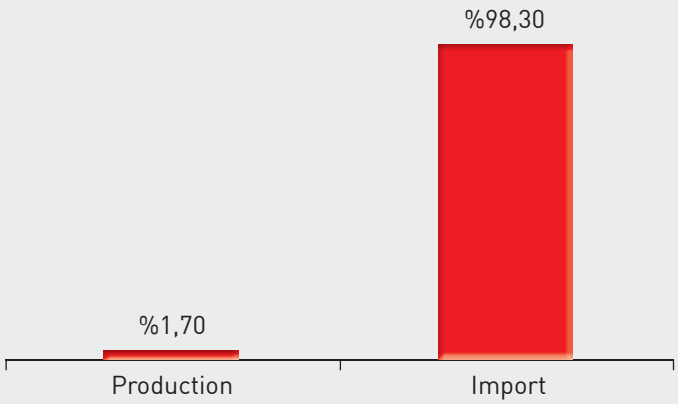
Graph 13
Shares of LNG Import Companies in 2008-2011

3.2.3 Interpretation of Generation versus Import

In 2011, the amount of natural gas which was extracted the underground natural gas fields and then refined, purified and transported to the transmission lines by gathering lines by wholesale-licensee generation companies or in other words the amount of natural gas produced in 2011, is 760 million Sm^3.

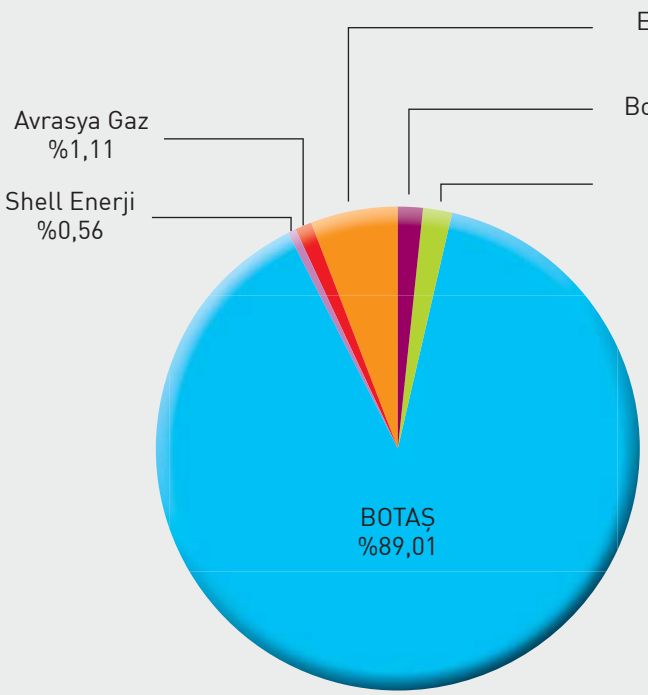
From the introduction of natural gas in 1970's, with the gradual increase in its rate and fields of use in parallel to the growth in the energy demand because of its advantages, and due to lack of sufficient levels of domestic reserves and productions, in order to meet the current and potential natural gas requirements made the import of natural gas mandatory for Turkey.

An ever-increasing demand for natural gas in our country as well as lack of sufficient levels of domestic reserves and productions, in order to meet that demand made it mandatory to import natural gas in 2011, too. As may be seen from Graph 14, only 1,7% of the natural gas supply in our country is met by the natural gas produced in Turkey while the 98,3% of it is met with imports carried out by import-licensee companies from various sources.

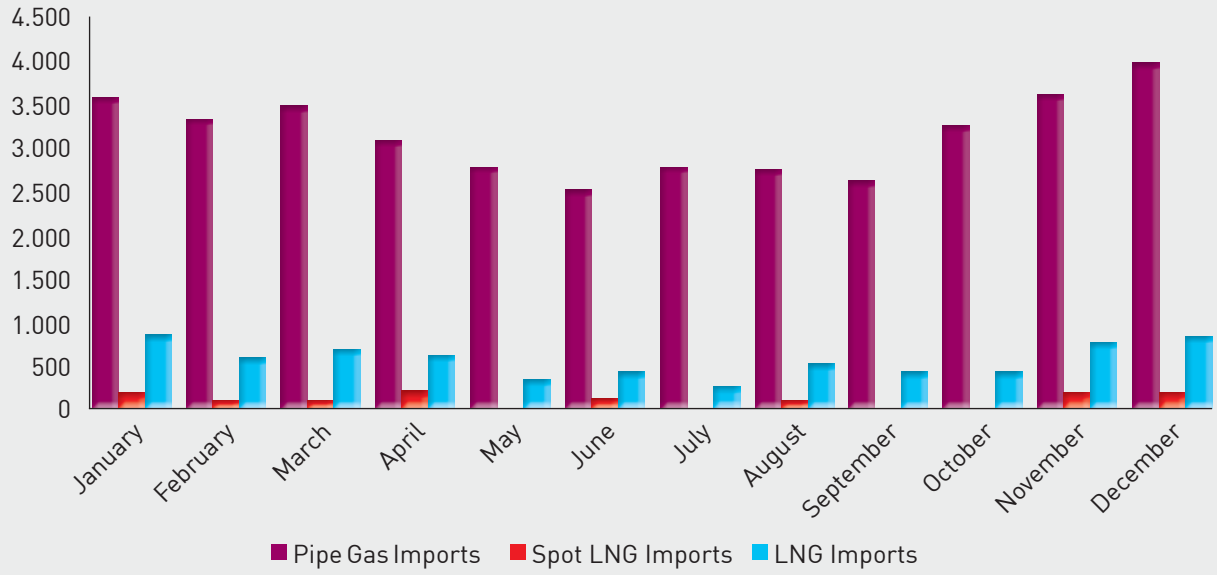


Graph 14
Shares of Sources Meeting Total Natural Gas Supply in 2011

Market shares in about the amount of imported natural gas of the companies holding import licenses acting in the natural gas market in 2011 and also the monthly imports are shown on Graph 15 and in Graph 16 respectively.



Graph 15
Market Shares of Import Companies in 2011



Graph 16
Monthly Distribution of Imports (million Sm^3)

3.3 Export

The activity of export of imported or in country generated natural gas can be carried out by legal entities holding export licenses within the countries set forth in their licenses. Export-licensee companies and the countries set forth therein for the export of natural gas are seen in Table 15.

Table 15 Export-Licensee Companies and Countries for Export

Licensee	Countries for Export
BOTAŞ	Greece
Setgaz Doğalgaz İthalat İhracat ve Toptan Satış A.Ş.	Bulgaria
Liquefied Natural Gas İhracat Tic. Ltd. Şti.	Greece
Ege Gaz A.Ş.	Greece

In 2011, 2 applications have been made to EMRA for import licensing which are expected to be concluded in 2012.

From among the import-licensee legal entities, currently only BOTAŞ is actively operating. BOTAŞ has been carrying out export of natural gas to Greece under their license. With the completion of the construction of the Turkey-Greece Natural Gas Pipeline, which was commenced in July 2005 after the Intergovernmental Agreement signed on 23 February 2003 and the Natural Gas Purchase-Sell Contract signed between BOTAŞ and DEPA (Dimosia Epichrisi Paroxis Aeriou, Greece) on 23 December 2003, export of natural gas to Greece was started on 18.11.2007. The Purchase and Sell Contract for the selling of natural gas being acquired from Azerbaijani Şah Deniz field to Greece involves the shipping of 750 million Cm^3. Natural gas quantities exported to Greece by BOTAŞ are given in Table 16.

Table 16 Exports in 2007-2011 (million Sm^3)

Years	2007	2008	2009	2010	2011
Quantities	30,8	435,8	708,5	648,6	714

3.4 Storage

Underground and ground storage of natural gas are required for purposes of meeting daily and seasonal variations and meet the deficit of natural gas arising due to reduction or cessation of the natural gas supply as well as ensuring that the system operates healthily.

In Turkey, currently BOTAŞ, TPAO, and Ege Gaz A.Ş. are engaged in storage activities by having acquired storage licenses.

In addition, in 2011 there are applications made to EMRA for the purpose of carrying out storage activities at both underground natural gas storage facilities and also at LNG facilities. In this context, in accordance with clause (d) added to sub-article 4 of the Natural Gas Market Law No. 4646 under the article 206 of the Law[4] No. 6111 dated 13.02.2011 that entered into force after it was published on the (Repeated) Official Gazette No. 27857 dated 5 February 2011; The Draft of **Regulations for Selection from among Legal Entity Applicants for Being Licensed to Carry Out Natural Gas Storage Activities at the Same Place,** has been prepared, then after receiving the opinions of relevant institutions and organizations as well as legal entities acting in the market, The Draft Regulation was finalized and approved by the Board and became effective after it was published on the Official Gazette no. 28211 dated 21 February 2012.

[4] Law on the Modifications in the Law on the Restructuring of Some Receivables, the Social Security and General Public Security Law, and in Some Othe Laws and Law Decrees

3.4.1 Underground Natural Gas Storage

BOTAŞ currently continues its studies regarding various storage projects in order to regulate the natural gas system.

The first of these projects is the Northern Marmara Region and Değirmenköy Natural Gas Underground Storage Project. The Natural Gas Storage and Reproduction Agreement was signed between TPAO and BOTAŞ on 21st of July 1999 in order to establish storage facilities in Silivri (off-shore) and Değirmenköy (on-shore). Turkey's first underground storage facilities; Northern Marmara Region and Değirmenköy Natural Gas Underground Storage Facilities; having a storage capacity of 1.6 billion m^3 of which the surface facilities were also constructed at the same place became operational after a ceremony held on 20th of July 2007.

The second project is the Salt Lake Natural Gas Storage Project. The Salt Lake Natural gas Underground Storage project was developed for the purpose of utilizing salt domes under the Salt Lake. The Engineering studies of the Project are completed and Chinese company **China Tianchen Engineering Corporation** of the Chinese origin commenced the project construction. With the completion of the project in 2015, the annual storage capacity of the facility shall be 1 billion m^3, if required, daily amount of 40 million m^3 of natural gas could be supplied to the system from the storage facility.

Salt Lake Natural Gas Storage Project, seeks to optimize of the operation of the natural gas pipelines system reduce, peak demand in the Central Anatolian Region and to meet the gas supply deficit that is expected in years to come.

3.4.2 LNG Storage

The Marmara Ereğlisi Terminal; which is currently being owned and operated by BOTAŞ and has been in operation since 1994, as well as Ege Gaz A.Ş. LNG Terminal; which has been founded in Aliağa, İzmir in 2001 and taken into operation in 2006, are facilities that are aimed to be used for the unshipping of LNG ships, the storage of LNG, the gasification of the imported LNG and the dispatch thereof to the national transmission line, and meeting the variations of demand by the regulation of peak loads at the periods of maximum consumption.

The data for the natural gas storage facilities that are present and in the project phase in our country take place in Table 17.

Table 17 Information of Facilities Regarding Storage Activities

Name of Company	Type of Facility	Location of Facility	Storage Capacity
BOTAŞ	LNG	Marmara Ereğlisi / Tekirdağ	255.000 m^3 LNG (85.000 m^3 x 3)
Ege Gaz A.Ş.	LNG	Aliağa / İzmir	280.000 m^3 LNG (140.000 m^3 x 2)
TPAO	Subsurface	Silivri / İstanbul	2.661.000.000 m^3
BOTAŞ	Subsurface	Sultanhanı / Aksaray	1.500.000.000 m^3

3.4.3 Storage Facilities Operating Procedures and Guidelines

3.4.3.1 Liquefied Natural Gas Storage Facility Basic Operating Procedures and Guidelines

The Regulations for the Determination of Liquefied Natural Gas Storage Facility Basic Operating Procedures and Guidelines have entered into force upon the publication thereof in the Official Gazette no. 27230 of 16.05.2009. The aim of these Regulations is the determination of issues that must be included in the basic operating procedures and guidelines to be elaborated by storage companies for a liquefied natural gas storage facility.

The Liquefied Natural Gas Storage Facility Basic Operating Procedures and Guidelines (OPG) prepared within the scope of the Regulations includes general technical and commercial rules apt for the principles of no discrimination between equal users and an economic, efficient and safe operation. A detailed information takes place in the OPG for the discharge, storage and gasification of LNG, properties of tanker ships and tanker trucks capable of approaching to the facility, docking and undocking of tanker ships and tanker trucks in line with the principle of no discrimination between equal parties.

The BOTAŞ OPG and the Ege Gaz A.Ş. OPG elaborated under the said Regulations have gained force upon approval with the Board Decision no. 2586/2 of 03.06.2010 and no. 2586/1 of 03.06.2010, respectively.

The OPGs are being updated in line with the studies made within the scope of demands received and opinions obtained from the market, and the Board Decision no. 3325 of 14.07.2011 has been made in this respect.

3.4.3.2 Underground Natural Gas Storage Facility Basic Operating Procedures & Guidelines

The Regulations for the Determination of Underground Natural Gas Storage Facility Basic Operating Procedures and Guidelines (OPG) for the determination of issues that must be included in the basic operating procedures and guidelines to be elaborated by storage companies for a subsurface natural gas storage facility were published in the Official Gazette No. 27954 dated 04.06.2011.

The OPG prepared within the scope of the regulations includes general technical and commercial rules apt for the principles of no discrimination between equal users and an economic, efficient and safe operation. The OPG will also include procedures and guidelines for the reservation, allocation and assignment of capacities and for the assignment of a stored volume, reservation applicable in cases where the demand exceeds capacities, the method of reservation for inactive capacities, and the procedures and guidelines applicable in cases where reserved capacities are not used, all in line with the principles of no discrimination between equal parties as regards the underground natural gas storage facility.

In 2011, studies continued on the draft Silivri Natural Gas Storage Facility Basic Operating Procedures and Guidelines prepared by TPAO as the holder of the Storage License dated 18.04.2003 wtihin the scope of temporary article 1 of the Regulations for the Determination of Underground Natural Gas Storage Facility Basic Operating Procedures and Guidelines ("Regulations") prepared basing on additional article 2 of the Electricity Market Law No. 4628 and article 4 of the Law No. 4646.

3.5 Wholesale

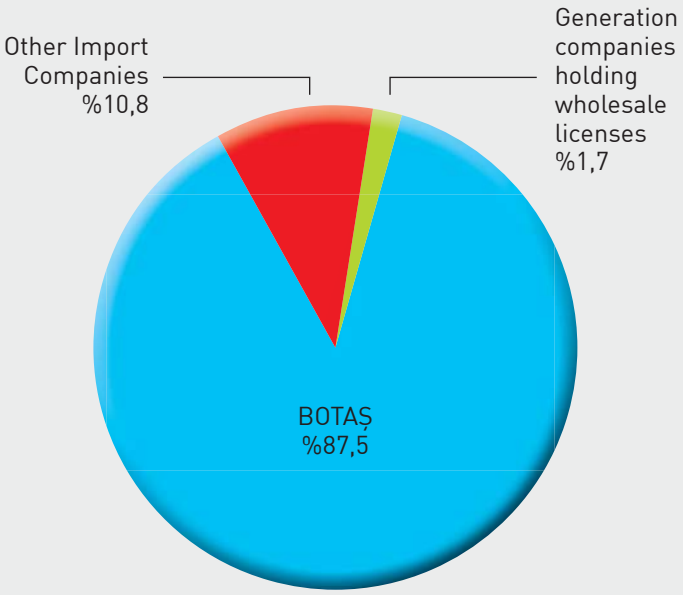
The selling of imported or domestically produced natural gas to CNG sales, import, export, distribution and other wholesale companies and eligible customers throughout the country, is carried out by legal entities issued

a wholesale license by EMRA. Import-licensee legal entities can carry out their wholesale activities without the obligation of getting a wholesale license.

The company and licensing information of the companies obtained a wholesale license by EMRA is given in Annex 1. With regards to Turkey having restricted natural gas reserves and productions, market shares of the import companies which supply natural gas to the market with their import licenses and can carry out wholesale activities under the Law as well as the wholesale companies supplying natural gas to the market which they purchase from import companies, generation companies or other wholesale companies, are significant for the identification of the level of competition of the market.

The liberal market model envisioned in the Law is based on the creation of a competition in the field of wholesale activity that has competitive dynamics and in this context, it is important to increase the number of market players in the wholesale field and prevent the development of dominant structures. Within this scope, in the Law the contract assignment model is prescribed as a natural result of the supply and demand conditions at the period of the issue of the Law and the obligations of BOTAŞ arising under its long-term agreements.

As may be seen from Graph 17, in the wholesale market in our country in 2011, a 87,5% portion of the total national natural gas consumption was met by BOTAŞ, which is the main supplier in the market. The four companies which have become market suppliers as a result of the contract assignment mechanism and other import-licensee companies (spot LNG) had a total share of 10,8 % in the market and generation companies holding wholesale-licenses have a total share of 1,7% in the market.



Graph 17
Shares of Import Companies and Generation Companies in Market in 2011

3.5.1 Wholesales via Pipelines

The total quantity of natural gas sold to the end users by the wholesale licensee companies in 2011, which is procured from import companies and/or generation companies and supplied to the market comprises a 1,75% of the national natural gas consumption.

3.5.2 Wholesale of LNG

The LNG transported by highway to places whereto the transmission of natural gas via pipelines is technically and economically not feasible, is largely used in branches of industry such as iron and steel as well as melting-machining of aluminum, casting and metalworking, manufacturing of materials of construction, manufacturing of automotive spare parts, food (bakery products, poultry), feed production and also in service sectors such as tourism, hospitals, airports, etc.

Shares of the total quantity of LNG in the national natural gas consumption between 2007 and 2011, that has been sold to the market by the wholesale licensee companies; part of which has been procured from Marmara Ereğlisi and Aliağa LNG Import Terminals in LNG state among the natural gas imported by the import companies in the state of LNG, have turned out to be as seen in Table 18.

Table 18 Rates of LNG Sales to Cover Consumption in 2007-2011

Years	2007	2008	2009	2010	2011
Rates	%1,5	%1,3	%1,3	%1,5	%1,5

3.6 Compressed Natural Gas (CNG)

CNG licensees, based on the content of their respective licenses, may, throughout the country, perform the activities of compressing, filling into pressurized containers and selling of natural gas which is purchased at wellhead, from national transmission network or from city distribution system and suppliers, transportation of it that is filled in pressurized containers by means of special vehicles between cities and at places which are out of reach of the transmission network selling of compressed natural gas by reducing its pressure, which is procured from CNG sale stations and/or from generation companies holding wholesale licenses at wellhead and then compressed via the equipments mounted on the transportation vehicles and filled into pressurized containers.

CNG licensee are responsible for planning, designing, construction, procurement and operation of CNG filling, loading and unloading facilities in accordance with the principles, procedures and standards set forth in the legislation.

CNG sales that are realized in 2007-2011 are shown in Table 19.

Table 19 CNG Sales in 2007-2011 (million Sm^3)

Years	2007	2008	2009	2010	2011
Rates	29,1	36,5	33,9	46,2	55,5

3.7 Transmission

3.7.1 Transmission via Pipelines

In Turkey, the activity of transmission of natural gas through a pipeline is carried out by BOTAŞ. The Law provides that companies carrying out transmission activities included among those to arise as a result of the restructuring of BOTAŞ suitably for the horizontally integrated legal entity will continue to have their public nature.

Since the enabling of third parties to have access to the network, that is, the enabling of any companies other than the owner or operator of the network to have their gas carried through the transmission network mean that they could enter the market, it would create a competitive result. Within the scope of the rules of respective EU Directives

and By laws that regulate third part access to facilities, third party access to the transmission network was subjected to regulation and the grounds for the rejection of access to the network have been tied to a rule. By-law on Natural Gas Market Transmission System Operation published on the Official Gazette no. 24918 of 26.10.2002 for purposes of the determination of procedures and principals that must be included in the network operating regulations to be elaborated by transmission companies companies, relate to network operating procedures and guidelines such as system entry, carriage quantity statement and carriage service programming, carriage quantity determination, outage operation, dispatch control, system balancing, communication system, capacity allocation, natural gas delivery and gauging operation, etc to take place in network operating regulations to be elaborated by transmission companies that carry out transmission activities by means of a natural gas pipeline network.

3.7.1.1 Regulations on Network Operation

By-law on Natural Gas Market, Transmission System Operation envisions the network operation regulations **(Network Code)** including the system entry and network operation rules in line with the principles of no discrimination between equal parties and economic, efficient and safe operation. The BOTAŞ Network Code prepared by BOTAŞ in this context for the purpose of registering certain rights and obligations of parties in relation to the carriage of natural gas via transmission pipeline were approved by EMRA and have entered into force on 01.09.2004. The **Network Code** was updated in 2007, 2008, 2009, 2010, and 2011 as a result of the evaluation of provided opinions and suggestions in line with the market requirements.

Network Code consists of two parts, including Basic Practices and Operational Provisions. The Basic Practices part covers basic principles, carrier's and transporter's obligations, application conditions for system entry by capacity reservation or making a connection as well as system entry disputes. The second part consists of capacity reservation, dispatch control and system balancing, carriage quantity statement and programming, entry and exit conditions, internal usage gas, passage of possession and liability, allocation, gauging, quality and pressure, emergency, tough day and limited-capacity day, maintenance, force majeure, invoicing and payment, change procedure and other sections.

In order that the system could physically be balanced, the conveyance company must monitor the system instantaneously and take some measures and/or actions to balance the system when so required. In this context, obligations have been imposed upon the conveyance system users to ensure physical balancing of the transmission network.

Under article 16.1 of the **Network Code**, any disputes arising between the shipper and the transporter in respect of the issues of capacity reservations, cancellations, allocations, system balancing participation fees, interruption balancing fees, service interruption fees, emergency, tough day and limited-capacity day practices are resolved by EMRA. Necessary efforts are being made for the resolution of any disputes referred to EMRA in relation to said issues.

The **Network Code**, can be subjected to changes by obtaining EMRA approval therefor under the By-law on Natural Gas Market Transmission System Operation. With the Energy Market Regulator Board's Decisions 3161 and 3167 of 12.04.2011 and 28.12.2011, respectively, and within the scope of article 5 of the By-law on Natural Gas Market Transmission System Operation, providing "No change can be made to these regulations without the Institution's approval therefor" and Section 21 of the Guidelines for BOTAŞ **Network Code**, some changes have been made to the **Network Code**, and with these recent changes, market players have been provided with a flexibility in respect of the day-end trading regulated in article 3.6.2 of the NOR.

In order to ensure that the regulations and practices concerning the access to transmission, LNG and storage facilities that make up the national natural gas system are taken up widely on a transparent platform, a Natural

Gas System Workshop was realized on 26-29 July 2011 by EMRA with the participation of all sector representatives. This communication platform, also welcome highly affirmatively by market participants, is envisaged to continue in coming years.

The Board Decision no. 2970 of 28.12.2010 has been made about the tariffs for the natural gas market transmission and dispatch control for application in 2011 through 2013 under the NOR, with which Decision, 9 Input Points, Export Output Points and Output Zones in the existing network in 2011.

Those points are as follows.
Input 1: The Malkoçlar Main Measurement Station whereat the quantities and quality of the natural gas entering Turkey through the Russia-Turkey Natural Gas Pipeline are determined.

Input 2: The exit side of the terminal valve of the Measurement Station unit at the Marmara Ereğlisi LNG Terminal, by which the quantities and qualities of the gasified LNG dispatched to the transmission network are determined.

Input 3: The Durusu Main Measurement Station whereat the quantities and quality of the natural gas entering Turkey through the Blue Current Natural Gas Pipeline are determined.

Input 4: The point whereat the Turkey Natural Gas Pipeline enters Turkey border, and the received quantities and qualities are determined at the Bazargan gauging station on the Iran side.

Input 5: The Türkgözü Main Measurement Station whereat the quantities and quality of the natural gas entering Turkey through the Azerbaijan-Turkey Natural Gas Pipeline are determined.

Input 6: The exit side of the terminal valve of the Measurement unit at the Ege Gaz A.Ş. Aliağa LNG Terminal, by which the quantities and qualities of the gasified LNG dispatched to the transmission network are determined.

Input 7: The exit side of the terminal valve of the gauging unit by which the quantities and qualities of the natural gas drawn out of the TPAO Silivri Subsurface Natural Gas Store and dispatched to the transmission network are determined.

Input 8: The point whereat the natural gas is dispatched to the transmission Network from the TPAO Akçakoca Natural Gas treatment facilities after the quantities and qualities thereof are determined.

Input 9: The exit side of the terminal valve of the measurement unit by which the quantities and qualities of the natural gas dispatched to the transmission network from the TEMİ Edirne production facilities are determined.

Export Output Point: The point whereat the Turkey-Greece Natural Gas Pipeline enters Greece border, and the delivered quantities and qualities are determined at the Kipi Measurement station on the Greece side.

Output Zone: All Output Points whereat the natural gas received by the Carrier is delivered to transporters or their representatives take place in one output zone.

There are 288 Main Output Points as announced by BOTAŞ for the Gas Year 2011 in the Electronic Bulletin Board[5] (EBB). As of the end of 2011, the length of transmission lines owned by BOTAŞ, that are completed and in use for the transportation of natural gas from an Input Point to an Output Point amounts to 12.440 km (Annex 2).

[5] An electronic announcement board installed for parties operating in the market to track market moves, operated by the conveyance company

3.7.2 Transmission of LNG

As well as the activity of transmission may be carried out by means of a pipeline under the Law, also it can be carried out by LNG transportation vehicles on the condition of obtaining license from the Board. As of the end of 2011, there are 22 companies licensed by the Board for carrying out the activity of LNG transmission within this scope, and the information for the names of companies, licensing dates and durations is given in table in Annex 1.

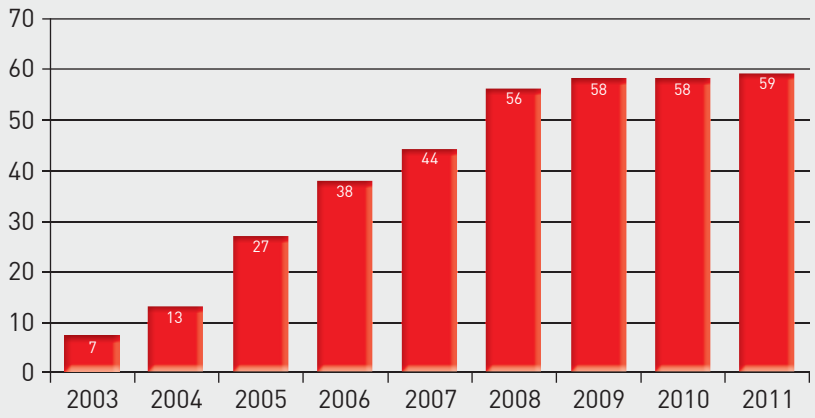
3.8 Distribution

3.8.1 Distribution Licensing Tenders

The urban natural gas distribution tenders were held in the period from the publication of the Law in 2001 up to the day within the scope of the Law and the secondary legislation elaborated basing thereon provided for the extension of natural gas supply and the carrying out of natural gas distribution activities by the private sector.

By Law, the service of urban natural gas distribution is carried out by companies holding a distribution license after winning the tender launched. Bids submitted by companies are evaluated over the unit service and depreciation fee quoted as one single price for the supply of one kWh of natural gas according to the procedures and guidelines set forth in the legislation pertinent thereto.

After the urban natural gas distribution tenders launched by EMRA, the number of distribution licensee has reached 62, including the 7 distribution licenses issued for the distribution regions that were active prior to the Law, and the number of distribution provinces provided with natural gas supply has reached 59. The figures attained in 2003-2011 as regards the distribution regions provided with natural gas supply are seen in Graph 18 by years.



Graph 18
Numbers of Distribution Provinces Provided with Natural Gas Supply through 2003 to 2011 (Counts)

By the end of 2011, totally 62 provinces in our country have been provided with the supply of natural gas for use in housing and industry. Efforts are being carried on by the urban natural gas distribution companies for the supply of gas in the provinces of Siirt, Batman, Ardahan, Giresun, and Kilis.

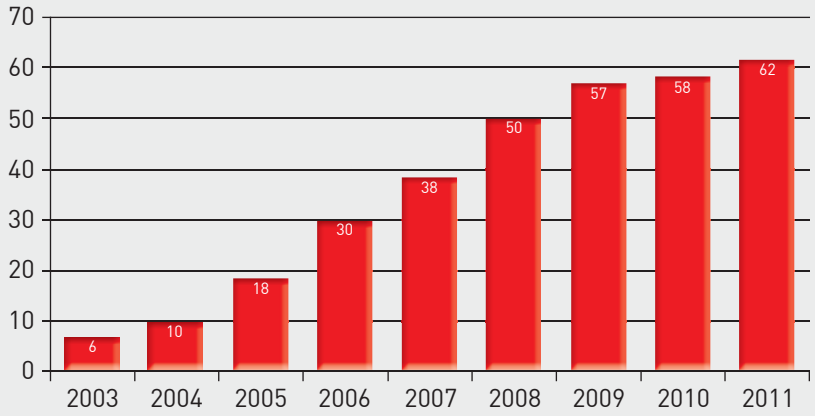
For the distribution region consisted of the provinces of Ağrı and Doğubayazıt and then for the distribution region comprising the provinces of Ağrı, Iğdır and Doğubayazıt, tenders were held for urban natural gas distribution licensing, but both tenders could not have been concluded because of the participant companies not having received the tender documents or submitted bid on the fixed dates.

Besides, in 2011, a tender was held for the urban natural gas distribution licensing for Zonguldak-Bartın and the winning company will be issued a license subsequent to the fulfillment of necessary obligations thereby.

There are 12 cities left, including Ağrı, Iğdır, Muğla, Sinop, Artvin, Tunceli, Bingöl, Muş, Bitlis, Mardin, Şırnak, and Hakkari for which no tender has yet been launched for natural gas distribution licensing and/or the announced tender could not have been concluded.

Moreover, following the completion of the pipelines to be constructed by BOTAŞ and the preparation of those cities mentioned, for the supply of natural gas, distribution regions will be formed after researching those cities and thereafter tenders will be announced by EMRA.

The numbers of cities provided with the natural gas supply in 2003-2011 are shown on Graph 19.



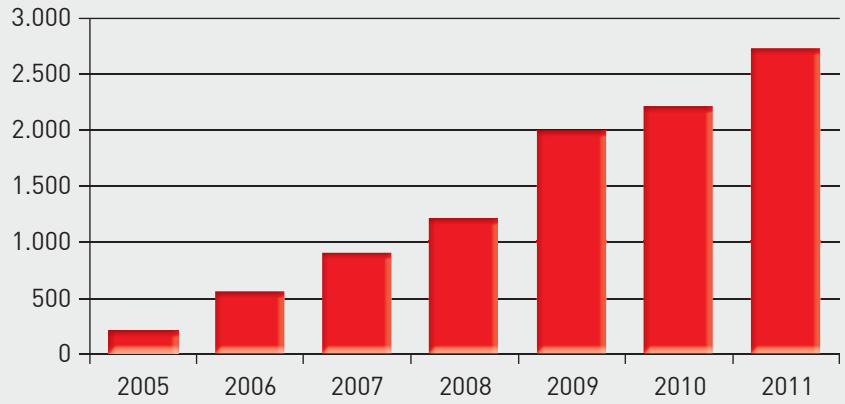
Graph 19
Numbers of Cities Provided with Natural Gas Supply through 2003 to 2011 (Counts)

The Natural Gas Distribution Map of Turkey prepared as of the end of 2011 is provided in Annex 3.

3.8.2 Distribution Network Investment Performances

Up to the end of 2011, the total sum of investments accomplished by companies holding distribution licenses through distribution licensing tenders in their distribution regions, has exceeded 2,7 billion Turkish Liras. Additionally, the length of steel pipelines constructed has reached approximately 3.540 km and the polyethylene pipelines to 27.320 km. In these distribution regions, 48.400 persons were directly or indirectly provided with employment and the number of non-eligible consumers has attained approximately 2.200.000.

A divisionis of the investments of natural gas distribution licensee companies by years is shown on Graph 20.



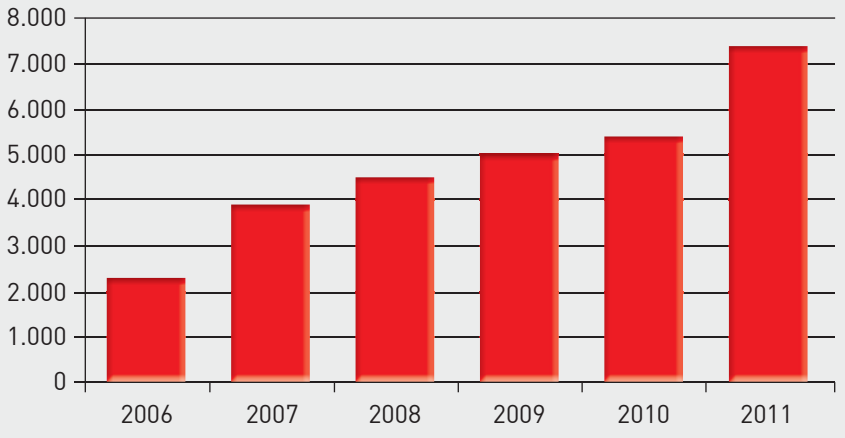
Graph 20
Total Investments of Companies Licensed Through Tenders

In the 7 distribution regions in which natural gas was being used prior to the Law, approximately 2.850 km of steel pipelines and 28.870 km of polyethylene pipelines have been constructed, with the approximate total sum of investments exceeding 5 billion TRL and the provision of 29.000 persons with direct or indirect employment. In these regions, the number of subscribers has attained approximately 6.900.000.

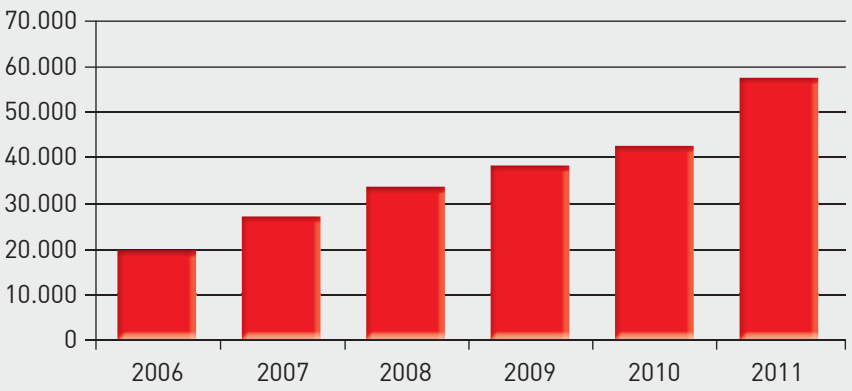
As of the end of 2011, the following approximate dataset has been reached in the natural gas distribution regions as a whole:

- 7.400 km of steel pipelines,
- 56.200 km of polyethylene pipelines,
- 9.100.000 subscribers,
- 77.800 persons provided with direct or indirect employment, and
- 7,9 billion TRL of total sum of investments.

Lengths of steel and polyethylene pipelines constructed in Turkey by years are shown on Graphs 21 and 22 respectively.



Graph 21
Total Steel Network in Distribution Regions (km)



Graph 22
Total Polyethylene Network in Distribution Regions (km)

One of the factors that influence the duration of the investments undertaken by distribution companies in distribution regions is the times for procurement of materials and installation. It is observed that the length of time from the ordering to installation of city-gate stations and regional regulator stations may extend up to 1,5 years for city-gate stations and up to 5 months for regional regulator stations since materials of those facilities such as gas regulators and meters mainly imported and the indicated length of time basically depends on the time for the procurement of order.

It is assessed that the length of time for the construction of service lines is approximately '1' business day in average throughout the country under ordinary conditions. Therefore, it can be concluded that almost the whole period of time from the application of potential consumers for connection to the accomplishment of the connection, which may range from '30' days to '60' days as set forth in the relevant legislation, is used for the installation of the distribution network in the region contracted for connection and the subsequent construction of the service line.

With the tenders held by EMRA, the natural gas supply was extended through cities, new business areas have been developed to provide about 48.400 persons with direct or indirect employment in order to create additional value to the national economy and also give rise to the competition of industrialists owing to the low service fees emerged through relevant tenders.

3.8.3 Monitoring and Auditing Activities

The activities of distribution companies are being monitored by EMRA under article 4.4. (g) of the Law and also the article 30 of the Natural Gas Market Distribution and Customer Services Regulations.

The process for monitoring and auditing whether the distribution companies -which have been operating on the basis of a license issued as a result of the natural gas distribution licensing tenders accomplished by EMRA- do fulfill their 5-year investment obligations under the tender specifications as a basis for the return of their performance bonds, under the applicable legislation, the distribution license and the tender specifications, started with the Board Decision No. 1955 dated 29.01.2009.

Under the mentioned Board Decision, it was decided to make an announcement by EMRA for the identification and authorization of the firms satisfying the conditions set forth in article 1 of the Decision and subsequent to the announcement, to gather applications of the firms and in order to carry out the labor mentioned above, it was also

decided to authorize the firms under a Board Decision who satisfy the conditions.

An announcement that was prepared within the scope of this decision was issued on the EMRA website on 28.07.2009 and the firms who apply to EMRA for qualification with necessary information and documentation referred in the announcement, were taken to evaluation for qualification.

As a result of the evaluation carried out, the firms UGETAM Istanbul Uygulamalı Gaz ve Enerji Teknolojileri Araştırma Mühendislik San. ve Tic. A.Ş. and S & Q Mart Kalite Güvenlik Sanayi ve Ticaret A.Ş. were authorized for the service to be performed under the Board Decision No. 2432/6 dated 18.02.2010 which is related to the firms which satisfy the conditions given in the mentioned announcement.

Subjects of the works to be done by the two authorized firms are determined to be:

1. All types of design and project design of the natural gas distribution network,
2. Construction, NDT, testing and commissioning of steel and polyethylene natural gas pipelines,
3. Construction, NDT, testing and commissioning of steel and polyethylene natural gas pipelines,
4. Design, construction, installation, testing and commissioning of RMS stations of the types A and B,
5. Current mapping, expropriation, utility lines information systems and GIS applications,
6. Service line and service governor installation,
7. Cathodic protection and SCADA applications,

and following the submission of those reports to EMRA, an evaluation is also made by EMRA.

As from 02.06.2010, following the determination of the procedure for the audition of time-limited obligations, letters of invitation were sent to the distribution companies whose 5¬-year investment obligation period has expired.

The 41 distribution companies out of those licensed as a result of the tenders held by EMRA, whose 5-year investment obligation has expired at the end of 2011, as well as another 6 distribution companies whose investment obligation will have been expired as of the end of 2012 were invited to sign a contract for taking services from the firms authorized by the Board. The 4 distribution companies whose investment obligation will have been expired as of the end of 2013 and the other 3 distribution companies whose investment obligation will have been expired as of the end of 2015-2016 will also be examined by the authorized firms following the expiry of their time-limited obligations.

Table 20 Expiry Dates of 5-Year Investment Obligations for Distribution Regions

2008	2009	2010	2011	2012	2013	2015-2016
Kayseri	Erzurum	Uşak	Edirne Kırklareli Tekirdağ	Gümüşhane Bayburt	Trabzon Rize	Van
Konya	Çorlu	Polatlı	Denizli	Elazığ	Çukurova	Geyve Ali Fuat Paşa Pamukova
	Gebze	İzmir	Yozgat	Diyarbakır	Aydın	Havza Vezirköprü Bafra
	İnegöl	Manisa	Gaziantep Kilis	Ordu Giresun	Siirt Batman	
	Çatalca	Niğde Nevşehir	Çanakkale	Adıyaman		
	Bandırma	Malatya	Şanlıurfa	Seydişehir Çumra		

	Balıkesir	Kahramanmaraş	Mustafakemalpaşa Karacabey Susurluk			
	Sivas		Isparta Burdur			
	Kütahya		Karaman			
	Konya Ereğli		Kars Ardahan			
	Çorum		Afyon			
	Samsun		Tokat Amasya			
	Aksaray		Karabük Kastamonu Çankırı			
	Karadeniz Ereğli Düzce		Erzincan			
	Kırıkkale Kırşehir		Antalya			
	Gemlik					
	Yalova					

In addition, the distribution companies that operate in the distribution regions of Bursa-Eskişehir and İzmit, the privatization tenders of which were held by the Directorate of Privatization Administration and the Kocaeli Metropolitan Municipality respectively, were also invited to sign a contract for the purpose of the audition of time-limited obligations thereof set forth in their distribution licenses.

In accordance with the Board Decision No. 1955 dated 29.01.2009, during the efforts for the determination of whether the 5-year investment obligations have been fulfilled by the distribution companies under the competition specifications as a basis for the return of performance bonds, it has been found out by the firms which were authorized by the Board that, some network construction works could not have been accomplished due to reasons not attributable to the companies, such as:

- Roads have not been cut in conformity with the Development Working Plan,
- The road grade level defined as the asphalt top level has not turned out,
- The permits and licenses that have to be obtained for constructing the distribution network under the legislation pertinent thereto have not been acquired, etc.

Within the scope during the works carried out, in relation to the draft prepared for the solution of problems confronted, a sector meeting was held in Istanbul on 17.06.2011, where the mentioned draft was put to discussion. As a result of the studies and evaluations made, occurrences that might be deemed events of force majeure for distribution network investments under the article 46 of the Natural Gas Market Licensing Regulations have been identified under the Board Decision No. 3303-4 dated 05.07.2011. Under this Decision, it has been decided for the making of the 5-year investment obligations of natural gas distribution companies over the amount of executions on the date of the examination made according to the Development Working Plan in force on the actual date of competition and for the assessment of occurrences referred to above to be events of force majeure.

Basing on the respective items of the subject Board Decision, the distribution companies whose 5-year investment period has expired were notified to state to EMRA any occurrences included in the events of force majeure within 15 days and the distribution companies whose 5-year investment period has not been expired were notified to state to

EMRA any occurrences included in the events of force majeure as of the expiry date of their 5-year investment period.

In the scope of the examination of 5-year time-limited obligations, reports for the companies the examination of which was completed prior to the Board Decision no. 3303-4 of 05.07.2011 had to be revised, and the work continued as such. Despite in 2011 the work for the examination of the respective obligations of 25 distribution companies by authorized firms has been completed, reports could not have been completed due to the failure of those firms to get necessary approved documents form respective institutions and organizations, the reports couldn't be submitted to EMRA. Furthermore, and due to similar problems, an additional period of time needed to be given to the examining firms in this respect, for the 18 distribution regions the examination of which was intended to be completed in 2011.

In the process started with the Board Decision No. 1955 dated 29.01.2009, the examination reports -that must be prepared by the firms authorized under the Board Decision No. 2432/6 dated 18.02.2010 by also taking the Board Decision No. 3303-4 dated 05.07.2011 into account- are expected to be submitted to EMRA starting from the first quarter of 2012.

3.8.4 Customer Services and Sectoral Competition

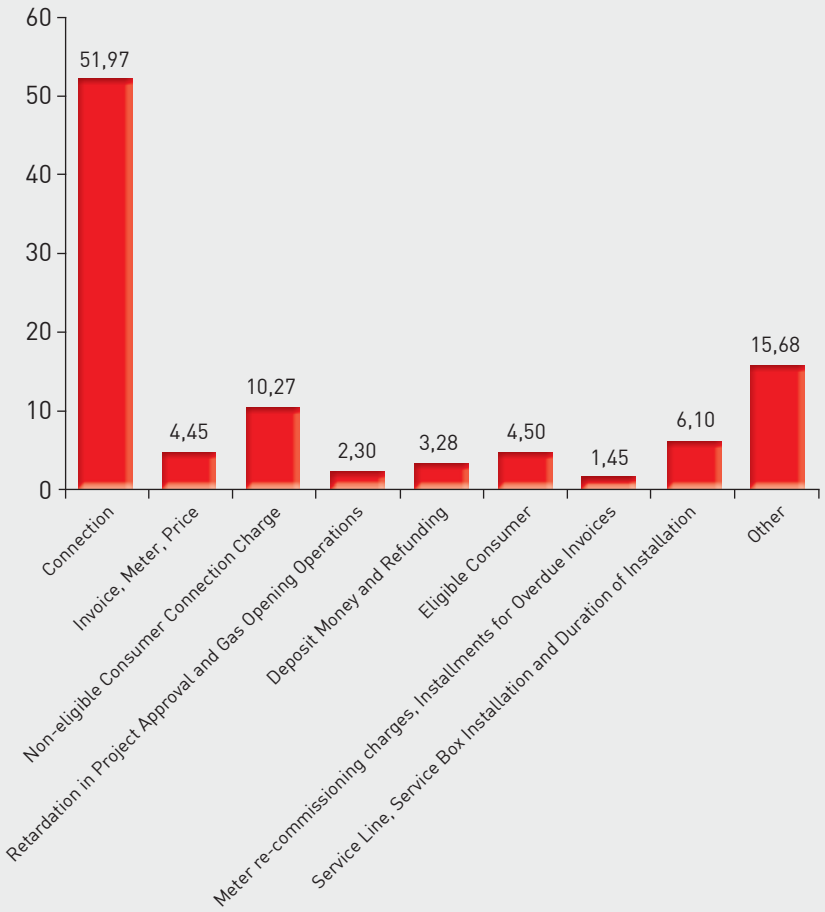
3.8.4.1 Evaluation of the Distribution Sector in the Context of Applications and Complaints Referred to EMRA

In 2011, approximately 69% of the applications to our Authority were filed under the Law No. 4982 on the Right to Information and 31%, under the Law on the Exercise of the Right to Petition.

A divisionis of the consumer applications and complaints made to EMRA as of the end of 2011 by subjects is shown in Table 21 and Graph 23.

Table 21 A divisionis of Consumer Applications and Complaints to EMRA as of the end of 2011

Connection	51,97
Invoice, Meter, Price	4,45
Non-eligible Consumer Connection Charge	10,27
Retardation in Project Approval and Gas Opening Operations	2,30
Deposit and Refunding	3,28
Eligible Consumer	4,5
Meter re-commissioning charges, Installments for Overdue Invoices	1,45
Service Line, Service Box Installation and Duration of Installation	6,1
Other	15,68



Graph 23
A divisionis of All Applications to EMRA in 2011 by Subjects (%)

In applications made within the scope of the Law on the Right Information, consumers make complaints by expressing largely the problems they experience with the distribution companies. Within this scope, all applications are individually examined under the legislation and respective distribution companies are required to provide information, documentation and explanation therefor, upon which any faulty practices are caused to be corrected and consumers are informed thereof.

A review of a distribution of applications by subjects indicates that most of the applications are made in relation to the connection by 51,9%, which is followed largely by the non-eligible consumer connection charge and then the service line, service box installation and duration of installation.

A review of the complaints made in relation to the connection reveals that, incoming complaints largely concentrate on certain distribution companies, that some consumers think that the natural gas service is being provided by municipalities and do not know that applications must be made to the distribution company, that some people make complaints for a no-connection case despite they are not included in a distribution region or a developed area, and that some people make complaints for the rejection of their request for connection despite the fail to satisfy the necessary conditions included under the legislation (cases where the request for connection is not made by the owner of an apartment, the apartment house or the facility or an authorized representative thereof). Rightful complaints in relation to the connection are assessed under the applicable legislation and a warning letter is sent to respective distribution companies and in cases where so deemed necessary, the issue is referred to the Audit Department.

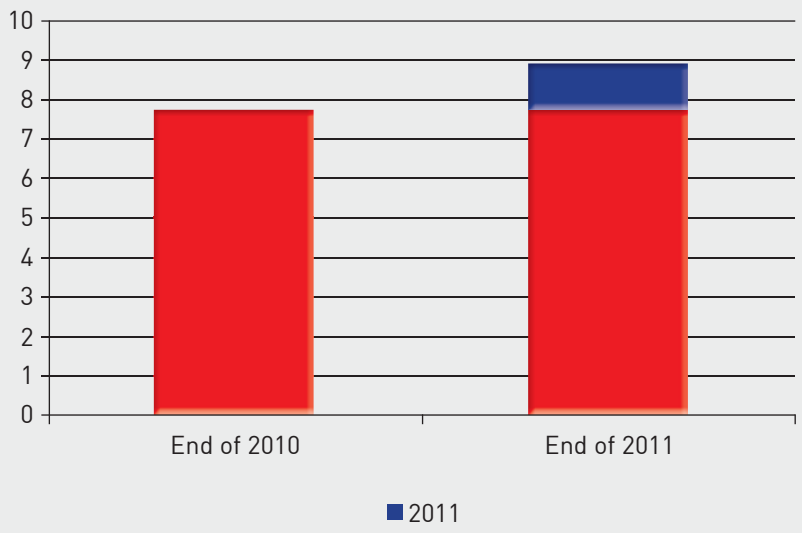
From the evaluation of other complaints referred to EMRA and the divisionis thereof by cities, it can be said that applications have a homogeneous divisionis in respect of cities and subjects of applications, and are caused by a lack of the basic

information on the part of consumers as the case is with many complaints to EMRA in respect of the connection. Within this scope, it can be concluded that distribution companies do not sufficiently use the mechanisms for the information of consumers. At this point, it would be appropriate to work in coordination with distribution companies in the coming period to urge them to take additional measures for the information of consumers and the removal of lacks of information.

3.8.4.2 Evaluation of the Distribution Sector in the Context of the Data Gathered from Distribution Companies

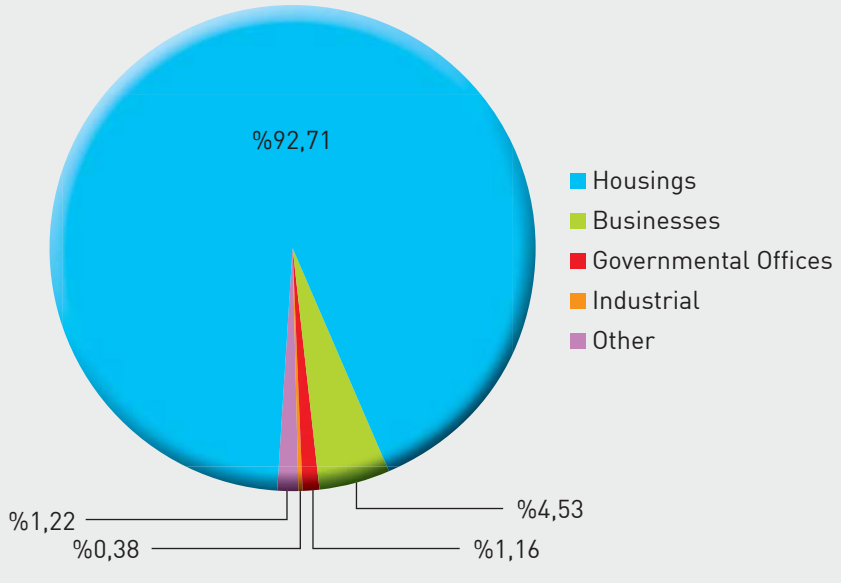
3.8.4.2.1 Information of Non-Eligible Consumers

In 2011, a total number of 1.203.155 non eligible consumers have been subscribed by distribution companies, including housings by 93%, businesses by 4%, governmental offices by 2%, industrial and other subscriptions. The numbers of non-eligible consumers attained at the end of 2011 are shown on Graph 24.

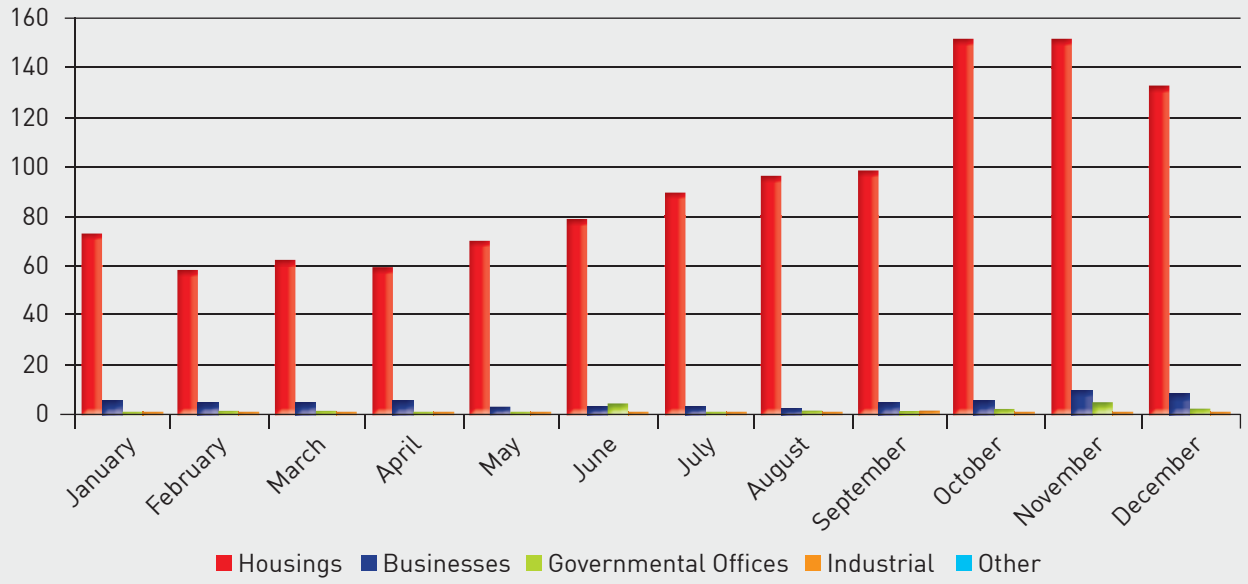


Graph 24
Attained Numbers of Non-Eligible Consumers (million)

A divisionis of the numbers of non-eligible consumers in 2011 by months and types is shown on Graphs 25 and 26.

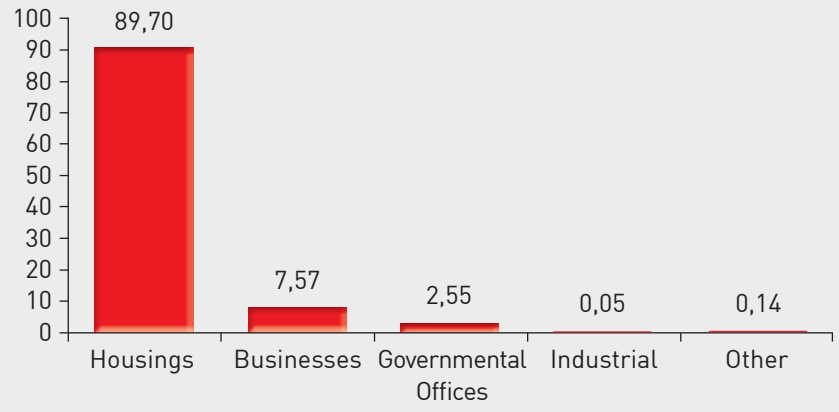


Graph 25
A divisionis of the Numbers of Non-Eligible Consumers in 2011 by Types



Graph 26
A divisionis of the Numbers of Non-Eligible Consumers in 2011 by Months and Types (counts)

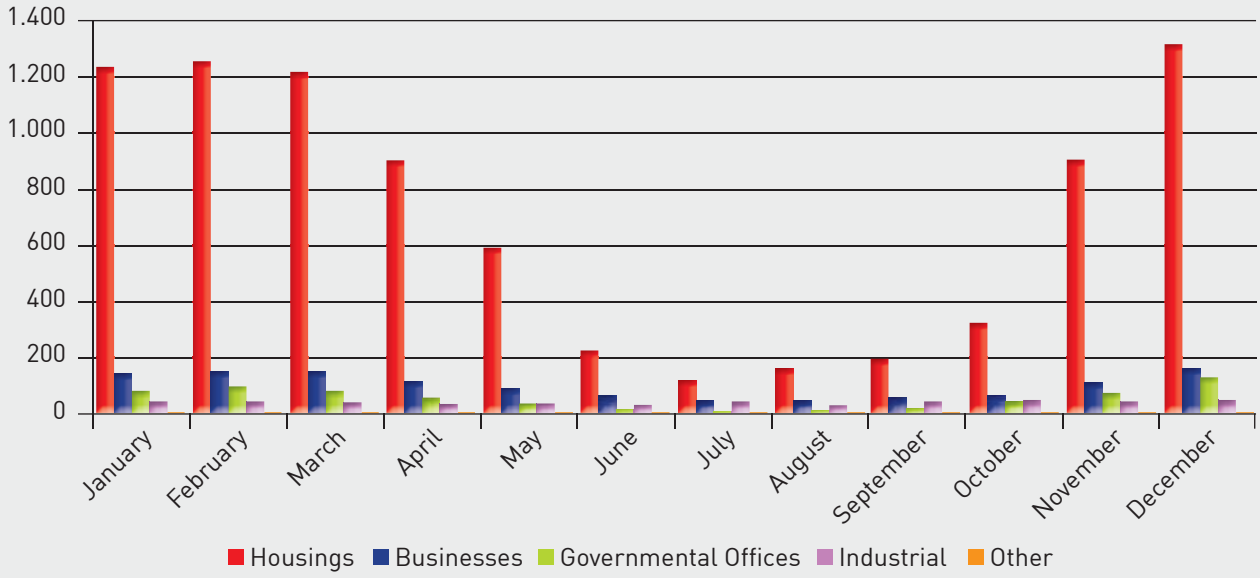
A divisionis of the total number of non-eligible consumers attained as of the end of 2011, including the new subscriptions accomplished by distribution companies in 2011, indicates to approximately 90% for housings, 8% for businesses and 2% for governmental offices, industrial and other subscriptions. This is shown on Graph 27.



Graph 27
A divisionis of Numbers of Non-eligible Consumers in 2011 by Types (%)

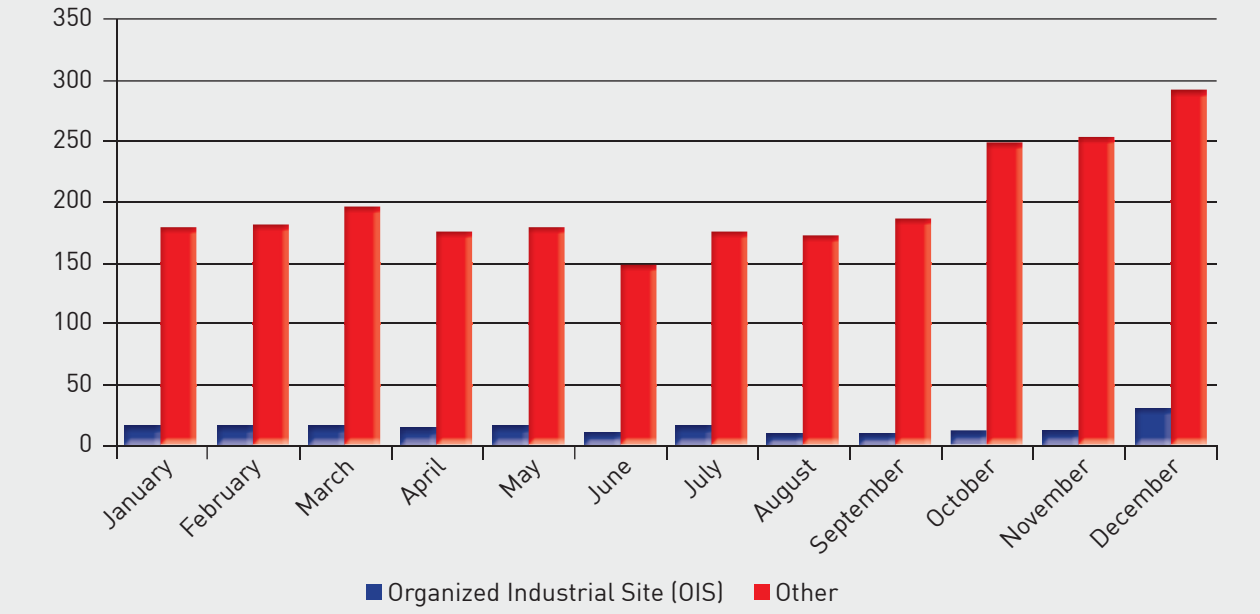
3.8.4.2.2 Amount of Consumptions

From a review of the amount of consumptions realized by non-eligible consumers by months of 2011, it is seen that consumptions by housings, businesses and governmental offices increase particularly in winter months, peaking in December, and yet in the industrial consumption, no significant change is observed by months. This case is shown on Graph 28.



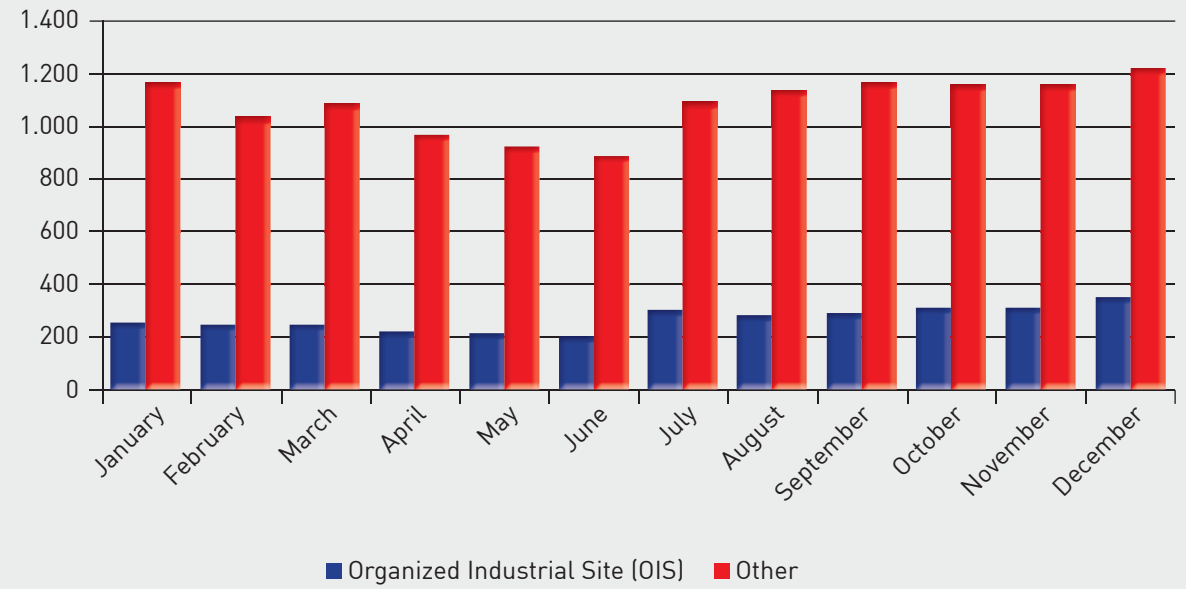
Graph 28
Natural Gas Consumptions of Non-eligible Consumers in 2011 (million Sm^3)

A divisionis of the consumptions of eligible consumers in 2011 by months is shown on Graph 29.



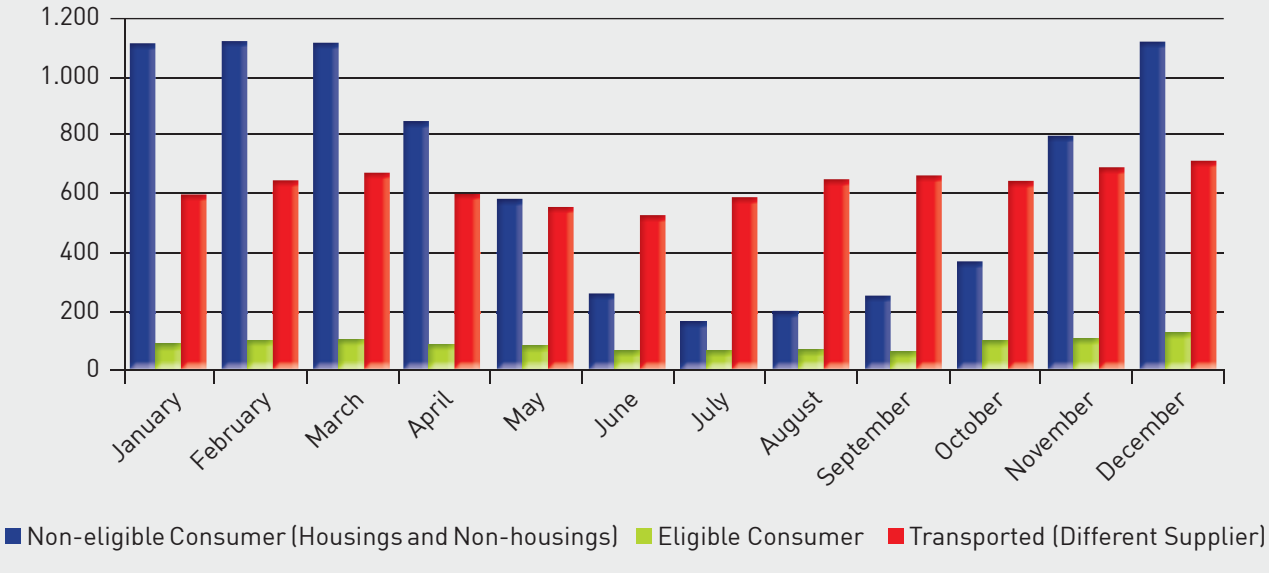
Graph 29
Consumptions of Eligible Consumers Purchasing Natural Gas from Distribution Companies in 2011 (million Sm^3)

A divisionis of the consumptions of eligible consumers in 2011 by months is shown on Graph 30.



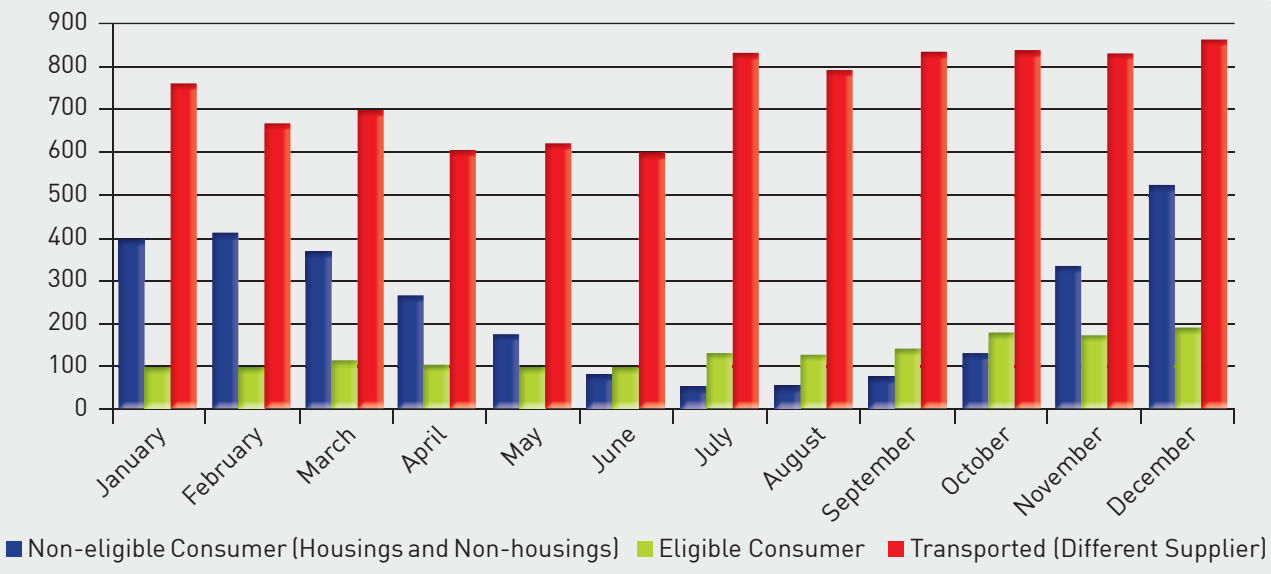
Graph 30
Consumptions of Eligible Consumers Purchasing Natural Gas from Suppliers in 2011 (million Sm^3)

The natural gas sales information of the natural gas distribution companies in 2011, which began to operate prior to the Law and are currently carrying on operations is shown on Graph 31.



Graph 31
Natural Gas Sales Information Of the Companies Which Were Operating Prior To The Law (million Sm^3)

The natural gas sales information of the natural gas distribution companies in 2011, which were licensed as a result of a tender held by EMRA is shown on Graph 32.

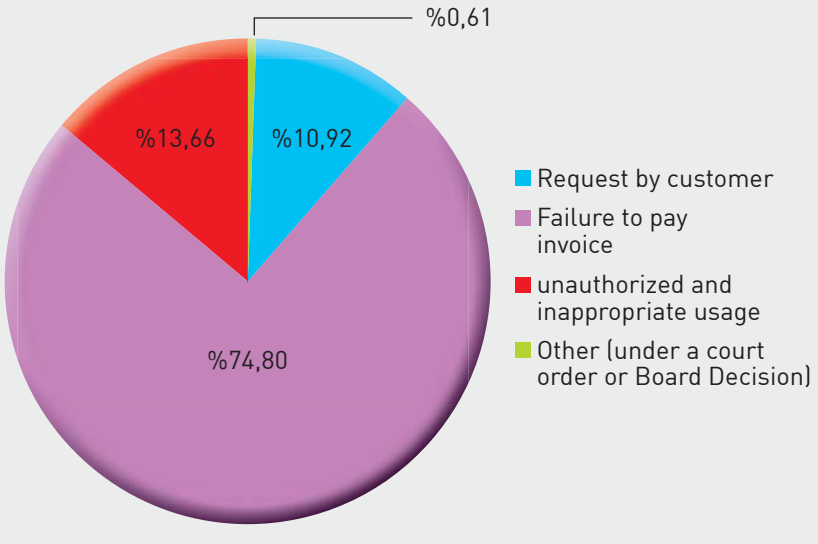


Graph 32
Natural Gas Sales Information for Companies Licensed through Tender (million Sm^3)

3.8.4.2.3 Disconnection of Natural Gas Distribution Service (Temporary Gas Outage)

It is determined that the number of temporary gas outages made by the distribution companies in 2011 is 1.246.228. It is further seen that approximately 75% of the outages were performed because of a failure to pay the invoice in time, 14 % because of unauthorized and inappropriate use of natural gas and 11% upon request by the consumer.

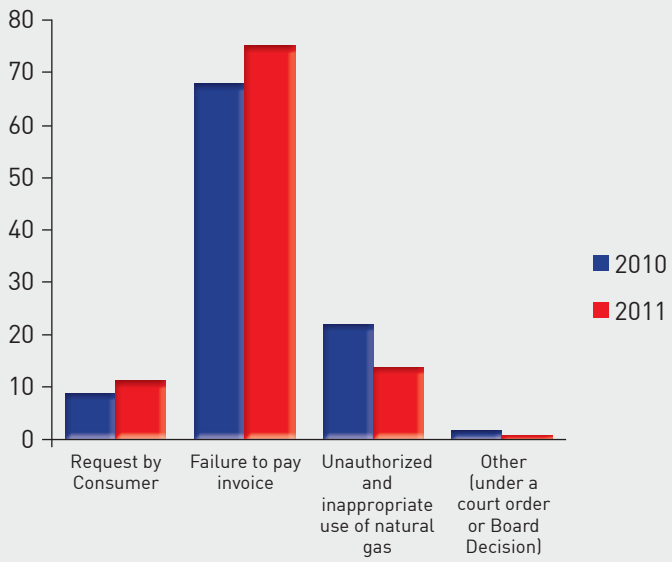
The reasons of temporary gas outages occurred in 2011 are shown on Graph 33.



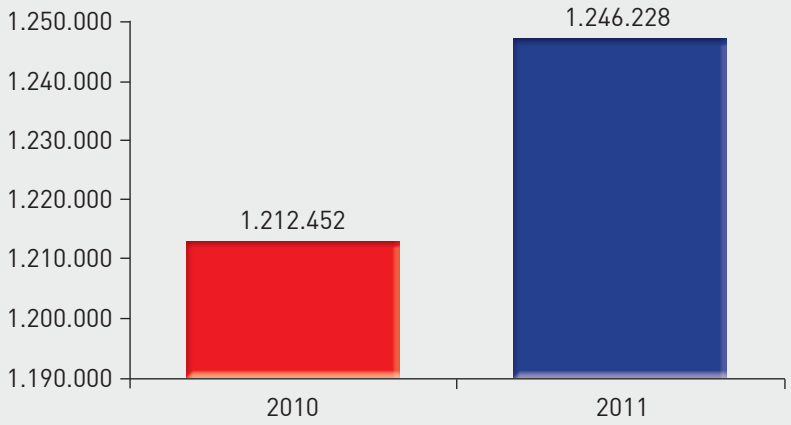
Graph 33
Reasons of Temporary Natural Gas Outages in 2011

When the the data for 2010 and 2011 is compared, it is determined that in 2011, a 8% decrease occurred in outages

caused by unauthorized and inappropriate use of natural gas while a 7% increase occurred in outages caused by a failure to pay the invoice in time. As a result of this, an approximately 2,8% increase occurred in the number of temporary natural gas outages in 2011. Comparisons for these determinations are set out on Graphs 34 and 35.



Graph 34
Reasons of Temporary Natural Gas Outages in 2010-2011 (%)



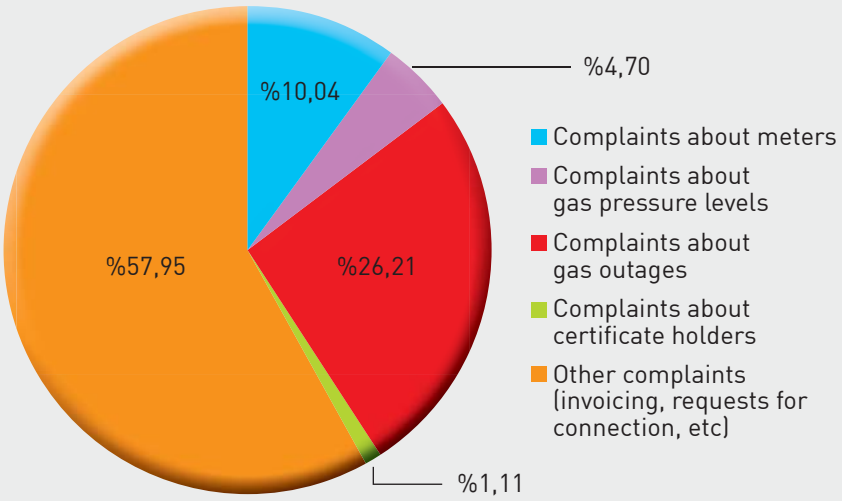
Graph 35
Temporary Natural Gas Outages in 2010-2011 (counts)

In order to decrease the number of natural gas outages caused by a failure to pay the invoice in time, it is required to diversify the invoice receipt resources and alternatives (automatic payment order, different bank alternatives, many payment points provided by distribution companies, etc). Considering that the applications to EMRA concerning difficulties suffered by consumers in invoice payment because some distribution companies had a limited number of receipt points, it is reckoned that if resources for invoice receipts would have been improved, the rate of temporary gas outages caused by a failure to pay the invoice in time would decrease.

3.8.4.2.4 Applications and Complaints

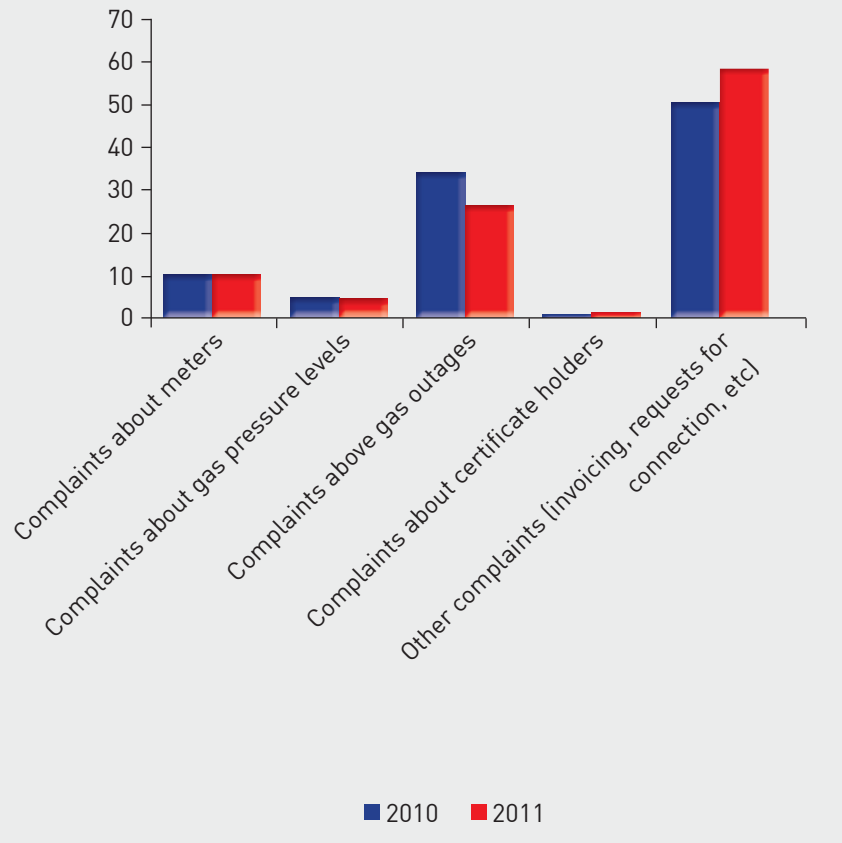
Applications and complaints made to distribution companies by consumers can be classified into various categories, including meters (measuring precision, malfunction, erroneous reading, etc), natural gas pressure levels, gas outages and miscellaneous.

Accordingly, a total number of 171.037 applications and complaints were made to distribution companies in 2011, including 5% involving natural gas pressure levels, 10% involving meters, 26% involving natural gas outages and 58% involving other issues (invoicing, demands for connection, etc). A proportional divisionis of the subjects of applications and complaints made to distribution companies by consumers in 2011 is shown on Graph 36.

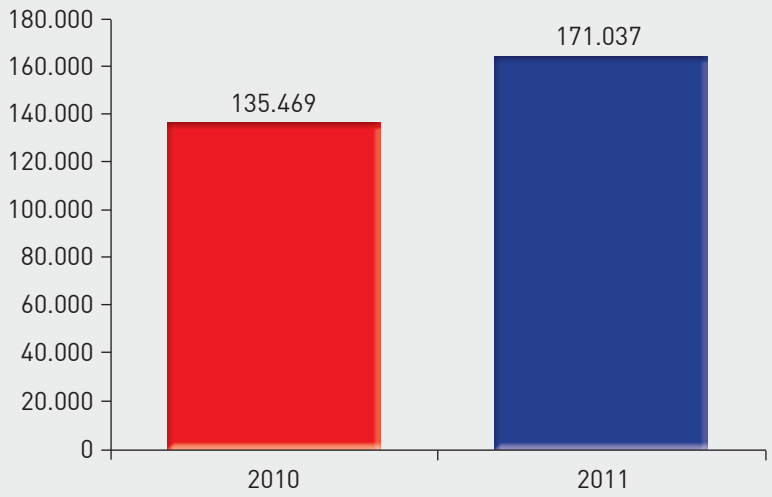


Graph 36
Subjects of Applications and Complaints Made to Distribution Companies by Consumers in 2011

When the the data for 2010 and 2011 is compared, it is determined that a 26% increase occurred in the number of applications and complaints made to distribution companies by consumers, and the main reason of this increase is the 8% increase in the number of applications and complaints caused by reasons such as billing, demands for connection, etc. Comparisons for these determinations are set out on Graphs 37 and 38.



Graph 37
A divisionis of Applications and Complaints Made to Distribution Companies by Consumers by Subjects in 2010-2011 (%)

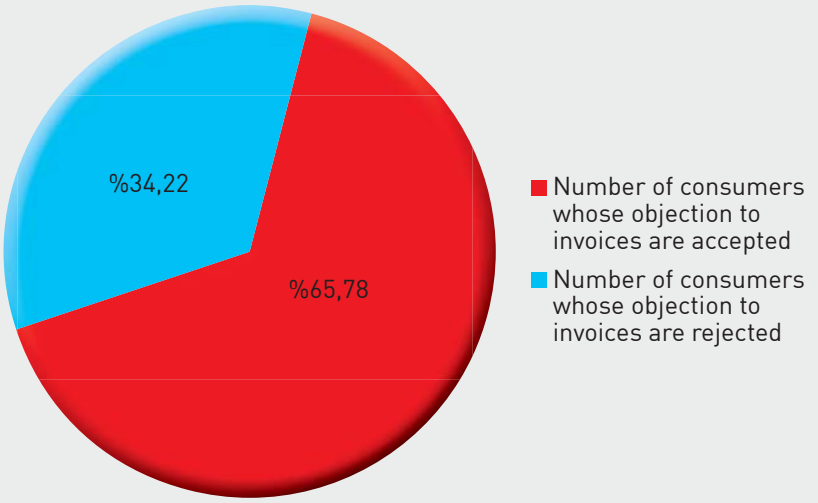


Graph 38
Applications and Complaints Made to Distribution Companies by Consumers in 2010-2011 (counts)

3.8.4.2.5 Objections to Invoices

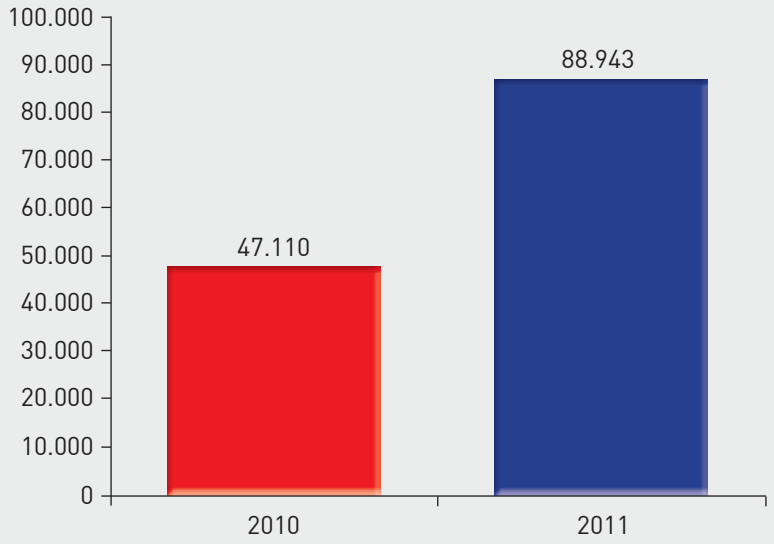
All objections to invoices that are conveyed to distribution companies, were examined under the headings of the number of objections to invoices, the number of consumers whose objection was accepted and the number of consumers whose objection was rejected, which are shown on Graph 39. Accordingly, it is seen that objections were made to 88.943 of the invoices issued in 2011 and approximately 66% of them were accepted by distribution companies for the reviewing thereof.

In addition, it is determined that, according to the data acquired from distribution companies, invoices have not been payed by 400.000 consumers approximately.

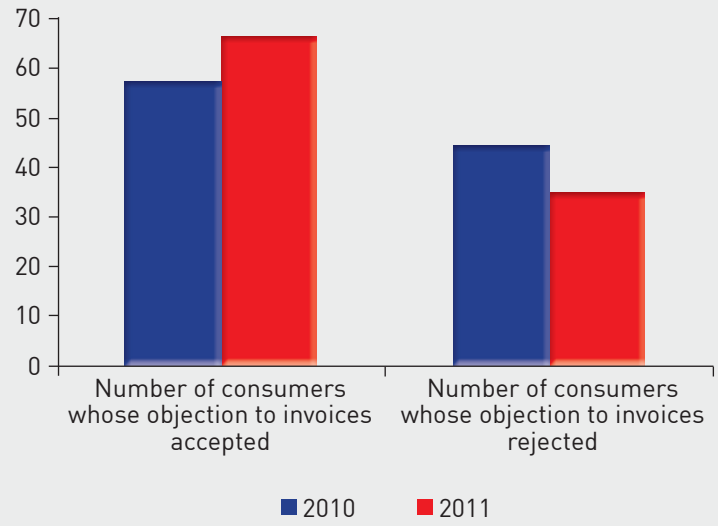


Graph 39
Applications by Consumers for Objection to Invoices in 2011

When the the data for 2010 and 2011 is compared, it is observed that a significant increase has occurred in the number of objections to the invoices in parallel to the increase in the number of non-eligible consumers. In addition to the increase in the number of objections to invoices, the number of objections to invoices that are accepted by the distiribution companies being about 66%, reveals that measures must be taken towards the reduction of mistakes in invoicing processes Comparisons for these determinations are set out on Graphs 40 and 41.



Graph 40
Total Applications by Consumers for Objection to Invoices in 2010-2011 (Counts)

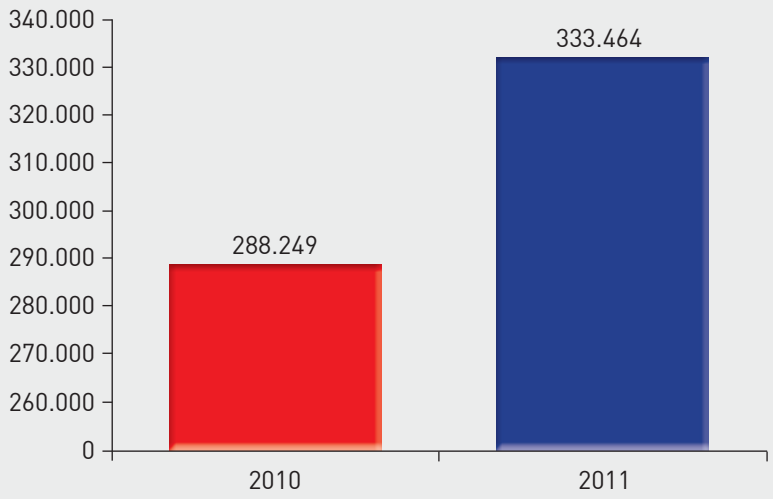


Graph 41
Applications by Consumers for Objection to Invoices in 2010-2011 (%)

3.8.4.2.6 Emergency Action

In 2011, distribution companies received a total number of 333.464 notices for emergency action.

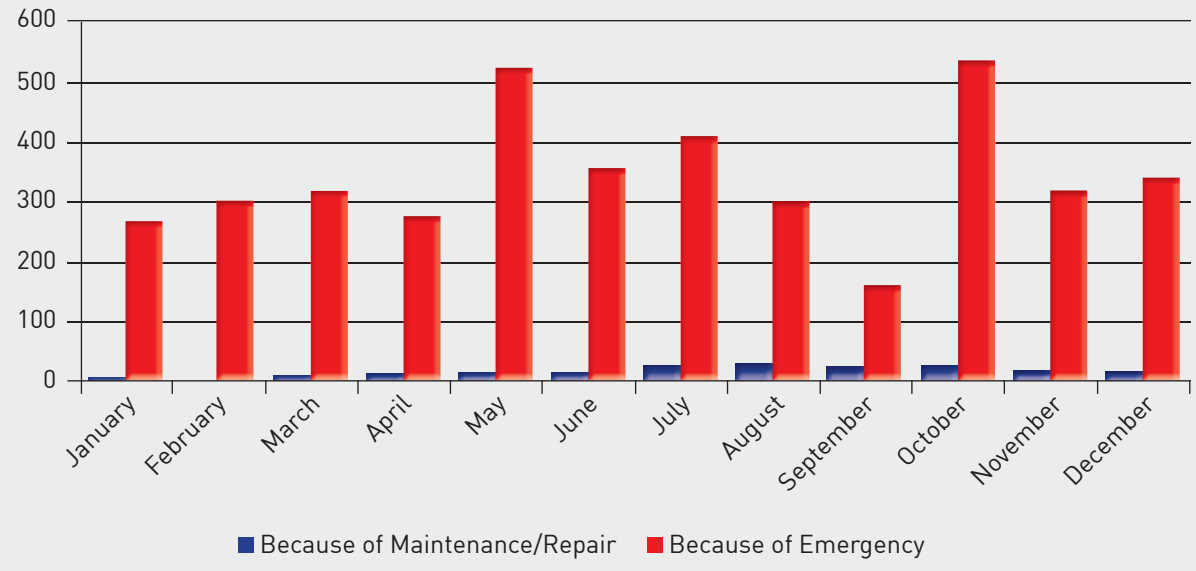
When the the data for 2010 and 2011 is compared, it is determined that an approximately 16% increase occurred in the number of notices for emergency actions in parallel to the increase in network investments and the number of non-eligible consumers. With the improvement of network operations and a further awareness of consumers, it is reckoned that a decrease in the number of notices for emergency actions would occur. Comparisons for these determinations are set out on Graph 42.



Graph 42
Numbers of Notices for Emergency Actions in 2010-2011 (counts)

3.8.4.2.7 Natural Gas Outages During Maintenance and Repair Activities

From the data provided by distribution companies, it is determined that the natural gas supply was interrupted for 4.285 times in 2011 because of emergency and maintenance-repair. A review of the natural gas outages by months shown on Graph 43 indicates that, number of such outages increase in periods when the network construction works have increased and the utilization of natural gas has increased. It is reckoned that such outages will be reduced year to year in parallel to an increased efficiency to be provided in the network operations.



Graph 43
A Divisionis of Natural Gas Outages in 2011 (counts)

3.8.4.3 Limitation for Eligible Consumers and Evaluation of Its Impact on Distribution Sector

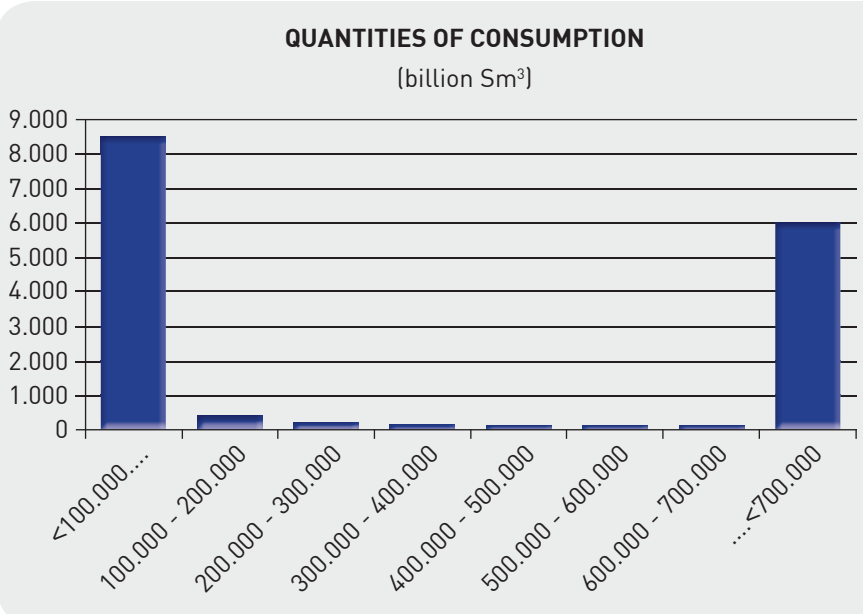
In the scope of the determination of a limit for the status of an eligible consumer, the natural gas consumption data for the 12-month period from 01.11.2010 to 31.10.2011 was analyzed as acquired from the total 57 distribution companies which carry out natural gas distribution activities based on a right, certificate, permit or authorization issued on a date preceding the effective date of the Law and which were licensed as a result of the tenders held by EMRA and have expired their initial 5 years from the license effective date.

The mentioned data is given in Table 22 and the graphs regarding data are on Graphs 44 and 45.

Table 22 Consumption Profile of the Consumers of 57 Analyzed Distribution Companies in Distribution Regions from 01.11.2010 to 31.10.2011

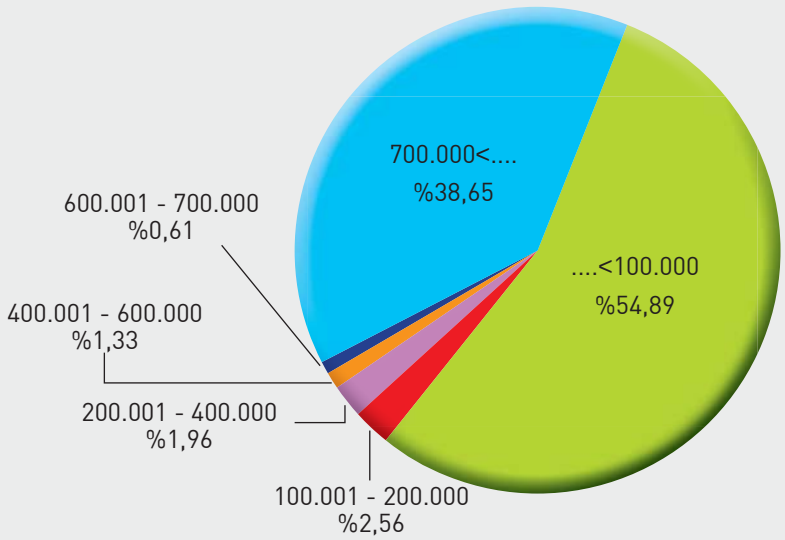
Consumption Range (Sm^3/year)	Percentage in Consumption Range (%)
.....<100.000	54,89
100.000-200.000	2,56
200.001-300.000	1,13
300.001-400.000	0,83
400.001-500.000	0,71
500.001-600.000	0,62
600.001-700.000	0,61
700.000<.....	38,65
Overall Total (above 100.000 Sm^3/year)	100,00

A review of the consolidated table composed in Table 22 by using the actual data from the analyzed companies for a period of 12 months from 01.11.2010 to 31.10.2011 establishes that the share of consumers with a consumption above 700.000 Sm^3/year in the total consumption is 38,65%; that the share of consumers with a consumption below 100.000 Sm^3/year is 54,89%; that a major part of the total natural gas consumed by consumers with a consumption in the range of 100.000 to 700.000 Sm^3/year is consumed by consumers with a consumption in the range of 100.000 to 200.000 Sm^3/year (2,56%); and that the least natural gas is consumed is the range of 600.000 to 700.000 Sm^3/year (0,64%), which is followed by the range of 500.000 to 600.000 Sm^3/year (0,62%).



Graph 44
Consumption Profile of the Consumers of Analyzed Companies in Distribution Regions Between 01/11/2010 and 31/10/2011

As may be seen from Graphs 44 and 45, consumptions of consumers in the distribution regions of analyzed distribution companies concentrate in the ranges below 100.000 Sm^3 and above 700.000 Sm^3. From the data provided by distribution companies, it is seen that approximately 87% of the total consumption below 100.000 Sm^3 consists of domestic consumption.



Graph 45
Consumptions of Consumers in the Distribution Regions of Analyzed Companies Between 01/11/2010 and 31/10/2011

As a result of the determinations and examinations above, the limitation for the status of an eligible consumer has been determined as 300.000 m^3 under the Board Decision no. 3600 of 28.12.2011 made for application to eligible consumers in the natural gas market throughout 2012.

As a result of the reduction of the eligible consumer limitation to 300.000 Sm^3, it is envisioned that 930 consumers with a share of 2,77% in the total consumption will acquire the status of an eligible consumer in respective to distribution regions in 2012 and therefore gain the freedom of a natural gas trading contract with any production company, importation company, distribution company or wholesale company in Turkey.

On the other hand, by using the data obtained for the determination of the eligible consumer limitation from 57 distribution companies, the percentage of eligible consumers selecting their supplier and the consumption ratio of eligible consumers buying natural gas from a supplier in the total consumption of all independent consumers were reviewed.

As a result of the review made separately for each distribution company and generally for 57 distribution companies for two periods from 01.01.2010 to 31.12.2010 and from 01.01.2011 to 31.10.2011, it is seen that:

- The percentage of eligible consumers selecting their supplier is 14,10% in the period from 01.01.2010 to 31.12.2010, yet the quantity of natural gas bought by eligible consumers buying from a supplier corresponds to 79% of the total quantity of natural gas bought by all eligible consumers, and
- The percentage of eligible consumers selecting their supplier is 13,99% in the period from 01.01.2011 to 31.10.2011, yet the quantity of natural gas bought by eligible consumers buying natural gas from a supplier corresponds to 83% of the total quantity of natural gas bought by all eligible consumers.

Moving from the data emerging in the review made, it can be concluded that eligible consumers with a high level of natural gas consumption tends to select their supplier and that eligible consumers with a low level of natural gas consumption largely continue to buy natural gas from distribution companies. Although this may be attributed to

many reasons, and a determination can only be made as a result of an individual study of each reason, reasons such as the bargaining power of eligible consumers with a high level of natural gas consumption being higher than that of eligible consumers with a low level of natural gas consumption, lack of information or asymmetry of information in the market, etc. can be mentioned.

The formation and permanence of competitive conditions in the natural gas market could only be ensured by improvements in the openness of the market. In this context, the reduction of the eligible consumer limitation to enable more consumers to select their supplier is an important tool.

As a result, the market development on supply and demand sides must essentially be carried out simultaneously. For this purpose, it is important to establish technically needed structures and to eliminate the lack of information by making consumers conscious of their right to select their supplier. Necessary measures must be taken for an effective operation of the market for purposes of both ensuring a development on the supply side of the market and eliminating the lack of information on the part of the consumer.

3.9 Certification Activities

3.9.1 Vocational Standards

The aim of the Vocational Training Law no. 3308 issued in 1986 is to regulate the guidelines for the apprenticeship, foremanship and mastership training and the vocational training to be provided in schools and enterprises. Graduates of three-year vocational high schools providing formal education apply to Vocational Training Centers (formerly the Apprenticeship Training Center) and if they succeed on the theoretical and practical tests they are entitled to a **Certificate of Mastership**. Graduates of a four-year vocational high scholls, a (two-year) vocational college or a university can however have a diploma as well as a **Business License**, including a Certificate of Mastership, without taking a test.

Graduates from informal education institutions must work as an apprentice at a workplace, during which they receive theoretical knowledge at the Vocational Training Center one day a week for three years, and if they succeed on the test at the end of the three years, they become a foreman. They continue to work as a foreman at the workplace for another three years, receiving further theoretical knowledge at the Vocational Training Center one day a week, and if they succeed on the test at the end of three years, they are entitled to a **Certificate of Mastership**. If they fail to receive theoretical training, they must work as a foreman at a workplace for six years (twice the theoretical training period). If they succeed on the test at the end of this period, they are entitled to a Certificate of Mastership. The apprenticeship training programs include 131 professions and the training, testing and certification operations for these professions are carried out by the Ministry of National Education.

The **organizations accredited** by the Turkish Accreditation Institution (TÜRKAK) for personnel certification and the coverage of the accreditations thereof are displayed on the website of TÜRKAK. In order to be eligible for operating and carrying out certification activities in our country, organizations of foreign origin must have been accredited by a national accreditation organization which is a member of the European Accreditation (EA) Association.

Under the Law no. 5544 of 21 September 2006, a **Vocational Qualification Institution** (MYK) has been founded to determine the guidelines for national qualifications in technical and professional fields based on the vocational standards and carry out certification activities.

The MYK authorizes institutions and organizations to carry out both national vocational standards and carries out

examination and certification services. Organizations to be authorized in relation to the examination and certification system must have been accredited by TÜRKAK (or any other accreditation institution which signed a multiparty recognition agreement with the European Accreditation Association) according to national vocational standards and qualifications acceptable to MYK under the general conditions for organizations entitled to Eligibility Assessment-Personnel Certification to TS EN ISO/IEC 17024.

The Turkish Natural Gas Distributors Association (GAZBİR) and International Gas Training, Technology and Research Center (UGETAM) cooperated and were authorized by MYK to elaborate national vocational standards for the natural gas market, and the 11 vocational natural gas standards were approved by MYK and published on the Official Gazette dated 25.8.2009. The vocational standards entered into force are given in Table 23.

Table 23 Vocational Natural Gas Standards Entered into Force in 2009

01	Flueman (Level 3)
02	Flueman (Level 4)
03	Steel Natural Gas Pipe Welder (Level 3)
04	Polyethylene Natural Gas Pipe Welder (Level 3)
05	Polyethylene Natural Gas Pipe Welder (Level 4)
06	Heating and Natural Gas Internal Plumber (Level 3)
07	Natural Gas Heating and Gas Burner Serviceman (Level
08	Natural Gas Operating/Maintenance Operator (Level 4)
09	Natural Gas Infrastructure Construction and Supervision
10	Geographical Information Systems Operator (Level 5)
11	Topographer (Level 4)

The company Natural Gas and Energy Education Certification and Technologic Services Limited Company (GAZMER) founded by GAZBİR have been taking efforts for being authorized and accredited for testing and certification to the vocational natural gas standards in force.

3.9.2 Internal Installation and Service Lines Certificate

Article 5 of the Law provides: "Certificates for internal installation and service lines shall be issued in the name of the Authority by public or private companies or urban distribution companies authorized by the Authority". Currently, certificates for internal installation and service lines are only being issued by distribution companies and are only valid in the distribution region where the issuing distribution company is authorized. The auditing of the holders of certificates for internal installation and service lines is performed by distribution companies and any certificate holders violating the legislation are notified to EMRA. Under the amendments made to the Natural Gas Market Certification Regulations, the starting date for the issue of Certificate of Authorization to public or private companies for issuing certificates for internal plumbing and service lines has been postponed to 01.01.2015.

With the amendments made to the Natural Gas Market Certification Regulations, provisions for the submission of the internal natural gas plumbing authorized engineer's certificate and steel and polyethylene pipe welder's certificates only issued by accredited organizations with applications for internal installation and service lines, have entered into force as of 01.01.2010 and a provision, reading **"... certificates issued prior to this date can be used with applications for certification, modification and visa up to 31.12.2001"** has been brought.
On the other hand, a draft amendment has been prepared to the regulations to ensure that MYK approved vocational

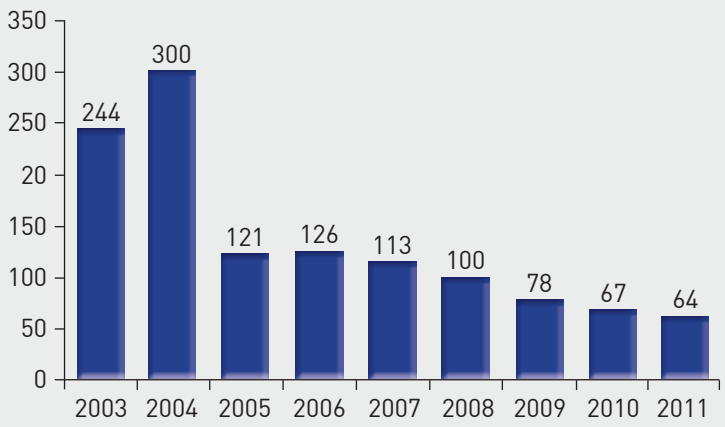
qualification certificates are included under the Natural Gas Market Certification Regulations, but this amendment to the regulations could not have been accomplished yet since not any vocational qualification certificate has not been issued under the vocational natural gas standards in 2011, despite a training was provided for some professions.

3.9.3 Construction and Service Certificate

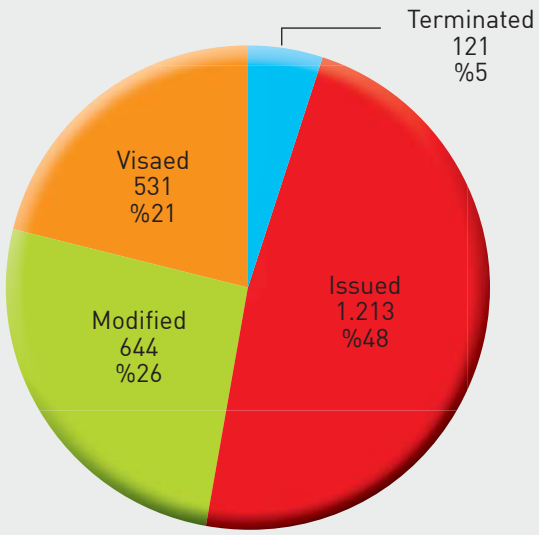
From 1 January to 31 December 2011, the following was done by EMRA:

- **64** construction and service certificates were issued. The total number of certificates issued by EMRA up to the end of 2011 has reached **1.213.**
- Upon a request by certificate holders, **26** certificates were modified by making changes to the trade name or the line of activity and categories.
- Visa operations were performed for **48** construction and service certificates.
- Upon a request by firms, **2** construction and service certificates were terminated.

The status of construction and service certificates issued by EMRA by years and the total certification operations as the end of 2011 are shown on Graphs 46 and 47.



Graph 46
Construction and Service Certificates Issued by Years (counts)



Graph 47
Certification Operations in Years 2002-2011 (counts)

3.10 National Natural Gas Consumption Data

3.10.1 Evaluation of National Natural Gas Consumption in 2011

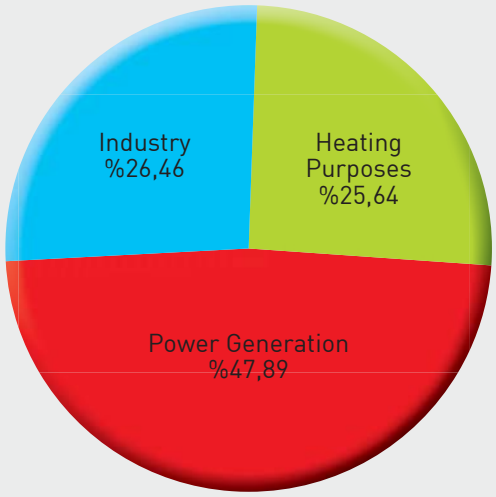
The estimated consumption for 2011 was declared to be 39 billion Sm^3 under the Board Decision No. 3055/6 dated 26.01.2011. But it is seen that the national natural gas consumption turned out to be 44.145.580.829 Sm^3 in 2011, exceeding the estimation by as much as 13,19 %. The national natural gas consumption in 2011 by sectors takes place in Table 24.

Table 24 National Natural Gas Consumption by Sectors in 2011 (Sm^3)

TOTAL CONSUMPTION	44.145.580.829
Conversion Sector	**21.142.329.336**
Power plants	13.208.760.168
Autoproducer power plants	7.820.728.611
Combined heating and power (CHP) plants	40.718.166
Autoproducer heating and power plants	53.362.192
Heating plants	0
Autoproducer heating plants	18.749.915
Other	10.284
Energy Sector	**1.326.963.939**
Petroleum refineries	1.326.958.654
Blast furnaces	0
Other	5.285
Transportation Sector	**22.386.887**
Vehicular fuel	11.339.450
Pipeline transportation	8.086.400
Other	2.961.037
Industry Sector	**10.333.123.143**
Woodworking	10.262.127
Alcohol and alcoholic products	29.921.028
Nonmetallic minerals (glass, ceramics, cement, etc)	1.221.467.864
Iron and Steel	908.842.266
Nonferrous metal mining and metalworking (chrome, copper, etc)	568.394.237
Food and beverages	786.694.056
Fertilizers	726.369.908
Construction (building products, road construction, etc)	391.808.443
Paper, cellulose and printing	151.736.249
Chemistry (including petrochemistry)	884.448.104
Mining and quarrying	144.226.705
Machine industry	62.046.967
Textiles, leather and clothing industry	575.902.214
Tobacco and tobacco products	27.869.065
Transportation vehicles industry (automotive, airplane industry, etc)	171.592.625
Organized Industrial Sites	3.026.715.732

Other	644.825.554
Service Sector	**2.479.052.461**
Businesses	1.321.860.700
State offices	1.004.230.549
Other	152.961.212
Other Sectors	**8.841.725.063**
Housing	8.778.534.715
Agriculture-Forestry	16.377.817
Stockbreeding (fisheries, poultry raising and cattle dealing, etc)	37.647.153
Other	9.165.378

When the sectoral distribution of the natural gas consumption in 2011 is examined under basic headings, it is revealed that natural gas is used for power generation by approximately 48%, in industries by 26% and for heating purposes by 26% (housings, businesses, state offices, agriculture and forestry, stockbreeding and quasi other sectors) in our country, as shown in Graph 48.

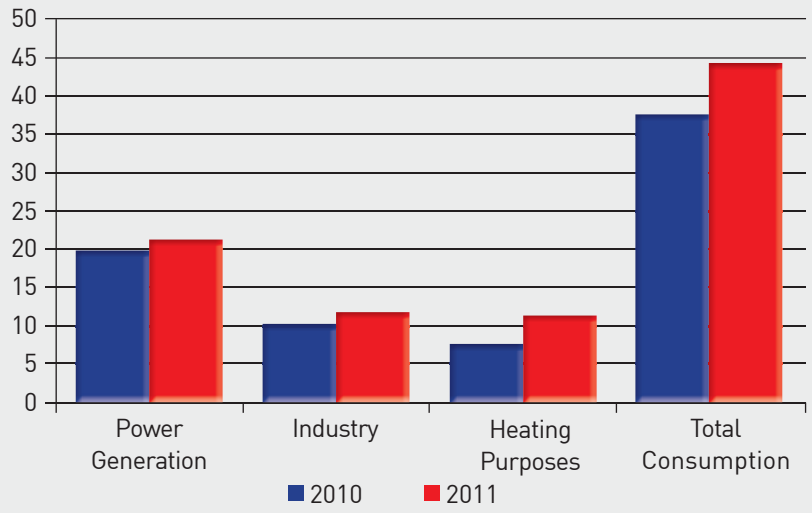


Graph 48
Sectoral Shares in National Natural Gas Consumption in 2011

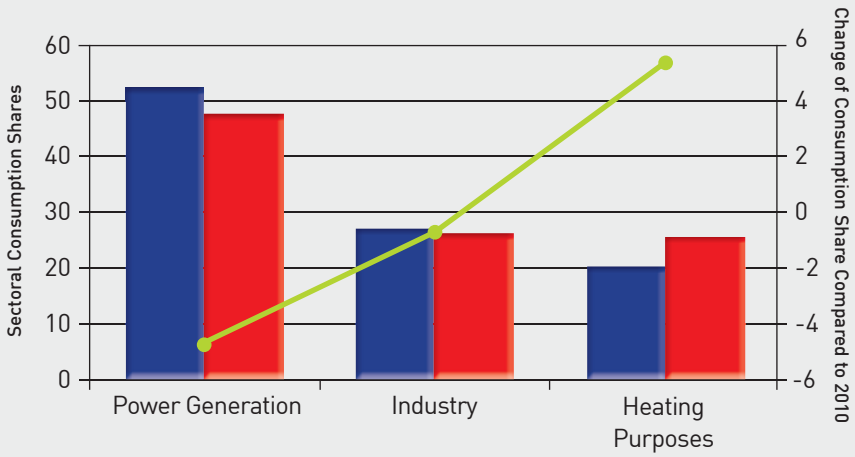
A comparison of sectoral consumptions in the natural gas market in 2010 and 2011 is given in Table 25 and in Graphs 49 and 50.

Table 25 Comparison of Sectoral Consumption Data of 2010 and 2011

	Power Generation	Industry	Heating Purposes	Total
Sectoral Consumption in 2010 (Sm^3)	19.697.875.764	10.158.755.939	7.591.114.392	37.447.746.095
Sectoral Consumption in 2011 (Sm^3)	21.142.329.336	11.682.473.969	11.320.777.524	44.145.580.829
Change of Consumption from 2010	+ 1.444.453.572	+ 1.523.718.030	+ 3.729.663.132	+ 6.697.834.733
Sectoral Consumption Share in 2010 (Sm^3)	52,60	27,13	20,27	%100
Sectoral Consumption Share in 2011 (Sm^3)	47,89	26,46	25,65	%100
Change of Consumption Share from 2010	- 4,71	- 0,67	+ 5,38	-



Graph 49
Comparison of Sectoral Consumptions of 2010 and 2011 (billion Sm^3)



Graph 50
Comparison of Sectoral Consumption Shares of 2010 and 2011 (%)

As may be seen from the table and graphs above, compared to the year 2010 where 37,447 billion Sm^3 of natural gas was consumed, in 2011 the national natural gas consumption turned out to be 44,145 billion Sm^3 with a 17,88% increase of totally 6,69 billion Sm^3, including 3,73 billion Sm^3 in heating purposes, 1,52 billion Sm^3 in industry and 1,44 billion Sm^3 in power generation.

From a review of the proportional changes in sectoral consumptions of natural gas in 2011, it is determined that no significant change has occurred in the industrial consumption but the consumption for heating purposes has increased by 5,38% and the consumption for power generation has decreased by 4,71%. Despite this proportional decrease, the natural gas consumed in power generation maintained its percentage of 50% as in past years and increased in quantity, as a result the fact emerges once again, in which immediate precautions must be taken so as to decrease the share of natural gas consumed in power generation.

3.10.2 National Natural Gas Consumption Forecast for 2012

Since 2004, EMRA has been carrying out national natural gas consumption Forecast efforts basing on the authority given under the legislation, maintaining its position to provide guidance by both measuring shares of participants in the market and sharing with the market the actual realized figures in the past year and estimated figures for the coming year. In the national natural gas consumption estimation studies, parameters for the economic progress in the world and in Turkey are taken into account and information is requested from market stakeholders.

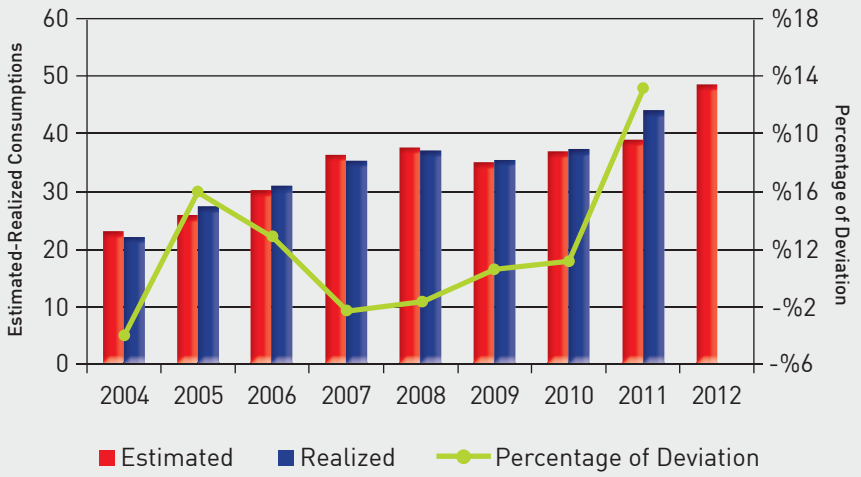
After the evaluation of forecasted consumption figures compiled from market stakeholders in this context, the estimated national natural gas consumption was determined to be 48.500.000.000 Sm^3 for 2012 under the Board Decision No. 3666 dated 26.01.2012, basing on the upper calorific value of 9.155 $kcal/m^2$ of natural gas.

The result of the national natural gas consumption farecast study for 2012, estimated and realized consumption figures for the years 2004-2102, percentages of deviation in the consumption forecasting and changes in the consumption figure compared to the previous year, are all given in Table 26.

Table 26 Forecasted and Realized National Natural Gas Consumption (Sm^3)

Year	Estimated	Realized	Deviation (%)	Change of Consumption
2004	23.200.000.000	22.272.528.240	- %4,00	+ 1.334.528.240
2005	25.800.000.000	27.348.213.942	%6,00	+5.075.685.702
2006	30.100.000.000	30.982.063.980	%2,93	+ 3.633.850.038
2007	36.200.000.000	35.394.878.230	- %2,22	+ 4.412.814.250
2008	37.500.000.000	36.865.051.313	- %1,69	+ 1.470.173.083
2009	35.000.000.000	35.218.839.390	%0,63	- 1.646.211.924
2010	37.000.000.000	37.447.746.095	%1,11	+ 2.192.278.980
2011	39.000.000.000	44.145.580.829	%13,19	+ 6.697.834.733
2012	48.500.000.000	-	-	-

As already seen from Table 26, in years 2008, 2009 and 2010, a regression occurred to the year 2007 after an increase of approximately 1,5 billion Sm^3 in 2008, followed by a decrease of approximately 1,5 billion Sm^3 in 2009, and as result of an increase of 2 billion Sm^3 in 2010, an understanding of the magnitude of decreases and increases was acquired to make largely precision estimations in predictions. In 2011, however, an increase of approximately 6,69 billion Sm^3 occurred in consumption compared to the previous year, with a resulting 13,19% of deviation in estimation though the forecasting methods which were used in preceding years and did yield healthy results were observed. These determinations are shown on Graph 51.



Graph 51
Estimated-Realized National Natural Gas Consumptions and Percentages of Deviation

In order that the National Natural Gas Consumption Estimation Studies could further meet the information requirements of market stakeholders, it is quite important that stakeholders provide the data requested by EMRA timely and accurately.

APPENDICES

APPENDIX 1: TABLE OF LICENSEE COMPANIES AND LICENSING INFORMATION

Firm's Trade Name	Type of License	License Date/ No
BOTAŞ	Imports	18.04.2003 DİT/131-9/012
BOTAŞ	Imports	18.04.2003 DİT/131-10/013
BOTAŞ	Imports	18.04.2003 DİT/131-11/014
BOTAŞ	Imports	18.04.2003 DİT/131-12/015
BOTAŞ	Imports	18.04.2003 DİT/131-13/016
BOTAŞ	Imports	15.05.2003 DİT/147-16/017
BOTAŞ	Imports	18.04.2003 DİT/147-17/018
BOTAŞ	Imports	23.05.2003 DİT/148-16/020
Shell Enerji A.Ş.	Imports	12.07.2007 DİT/1253-3/159
Bosphorus Gaz Corporation A.Ş.	Imports	18.10.2007 DİT/1346-2/165
Enerco Enerji San. ve Tic. A.Ş.	Imports	31.12.2008 DİT/1924-4/180
Avrasya Gaz A.Ş.	Imports	26.02.2009 DİT/1989-4/184

Firm's Trade Name	Type of License	License Date/ No
BOTAŞ	Import (Spot LNG)	17.10.2008 DİT/1808-6/178
Ege Gaz A.Ş.	Import (Spot LNG)	12.11.2008 DİT/1837-1/179
Global Maden Doğalgaz Pet. ve Kim. San. ve Tic. A.Ş.	Import (Spot LNG)	07.05.2009 DİT/2087-3/188
Setgaz Doğalgaz İthalat İhracat ve Toptan Satış A.Ş.	Import (Spot LNG)	07.05.2009 DİT/2087-4/189
OSB Doğal Gaz A.Ş.	Import (Spot LNG)	10.08.2009 DİT/2206-1/191
Aksa Doğal Gaz Toptan Satış A.Ş.	Import (Spot LNG)	01.10.2009 DİT/2257-7/195
Gazport Doğalgaz Toptan Satış Ticaret ve Sanayi A.Ş.	Import (Spot LNG)	15.10.2009 DİT/2272-3/197
Habaş Sınai ve Tıbbi Gazlar İstihsal Endüstrisi A.Ş.	Import (Spot LNG)	11.11.2009 DİT/2304-5/200
Angoragaz Doğalgaz Top. Sat. İth. İhr. San. ve Tic. A.Ş.	Import (Spot LNG)	15.12.2009 DİT/2344-4/203
Enerco Enerji San. ve Tic. A.Ş.	Import (Spot LNG)	04.02.2010 DİT/2416-1/207
İstanbul Gübre Sanayi A.Ş. (İGSAŞ)	Import (Spot LNG)	11.03.2010 DİT/2462-2/206
Aygaz Doğal Gaz Toptan Satış A.Ş.	Import (Spot LNG)	20.05.2010 DİT/2565-10/211
Shell Enerji A.Ş.	Import (Spot LNG)	29.07.2010 DİT/2670-3/212
Turcas Gaz Toptan Satış A.Ş.	Import (Spot LNG)	03.08.2010 DİT/2680-4/213
Aktif Doğal Gaz Ticaret A.Ş.	Import (Spot LNG)	19.08.2010 DİT/2710-1/214

Petgas Doğalgaz Serv. Test Müh. Müşv. San. ve Tic. A.Ş.	Import (Spot LNG)	19.08.2010 DİT/2710-2/215
Erdgaz Doğal Gaz Toptan Satış A.Ş.	Import (Spot LNG)	19.08.2010 DİT/2710-3/216
Hattuşa Enerji Gaz (HEGAZ) İthalat San. ve Tic. A.Ş.	Import (Spot LNG)	26.08.2010 DİT/2730-1/217
Enerjisa Doğal Gaz Toptan Satış A.Ş	Import (Spot LNG)	06.09.2010 DİT/2757-2/219
GDF SUEZ Tabii Gaz Tedariki A.Ş.	Import (Spot LNG)	27.10.2010 DİT/2838-3/225
Zorlu Doğal Gaz Tedarik Ticaret A.Ş.	Import (Spot LNG)	11.11.2010 DİT/2876-4/229
EWE Doğalgaz Sanayi ve Tic. A.Ş.	Import (Spot LNG)	15.12.2010 DİT/2923-1/231
Naturgaz Doğalgaz İthalat İhracat San. ve Tic. A.Ş.	Import (Spot LNG)	17.02.2011 DİT/3077-3/235
Ortan Doğalgaz Toptan Satış ve Dış Ticaret A.Ş.	Import (Spot LNG)	17.02.2011 DİT/3077-4/234
Adalı Enerji A.Ş.	Import (Spot LNG)	10.03.2011 DİT/3111-2/239
Doğal Enerji İthalat A.Ş.	Import (Spot LNG)	10.03.2011 DİT/3111-3/238
Bilgin Grup Doğal Gaz A.Ş.	Import (Spot LNG)	12.05.2011 DİT/3211-3/241
Linagaz LNG İthalat ve Doğalgaz Toptan Satış A.Ş.	Import (Spot LNG)	24.08.2011 DİT/3395-9/256
Reverans Enerji İthalat ve Ticaret Ltd. Şti.	Import (Spot LNG)	07.09.2011 DİT/3410-2/258
Anadolu Grup Doğalgaz İthalat ve İhracat A.Ş.	Import (Spot LNG)	01.11.2011 DİT/3483-1/262

Firm's Trade Name	Type of License	License Date/ No
BOTAŞ	Export	06.04.2004 DİH/311-14/048
Setgaz Doğalgaz İthalat İhracat ve Toptan Satış A.Ş.	Export	08.04.2010 DİH/2512-1/208
Liquefied Natural Gas İhracat Ticaret Ltd. Şti.	Export	27.10.2010 DİH/2838-2/224
Ege Gaz A.Ş.	Export	11.11.2010 DİH/2876-2/227

Firm's Trade Name	Type of License	License Date/ No
Ege Gaz A.Ş.	Storage	04.04.2003 DEP/128-2/009
BOTAŞ	Storage	04.04.2003 DEP/128-3/010
TPAO	Storage	18.04.2003 DEP/131-8/011
BOTAŞ	Storage	27.06.2007 DEP/1238-6/155

Firm's Trade Name	Type of License	License Date/ No
TPAO	Wholesale	23.05.2003 DTS/148-18/022
Amity Oil International Pty. Limited- Türkiye İstanbul Şubesi	Wholesale	06.11.2003 DTS/245-17/033
Thrace Basin Natural Gas Corporation- Ankara Türkiye Şubesi	Wholesale	18.08.2003 DTS/181-18/027
Tiway Turkey Limited - Ankara Türkiye Şubesi	Wholesale	17.05.2007 DTS/1198-1/151
Foinavon Energy Inc. - Türkiye Ankara Şubesi	Wholesale	17.05.2007 DTS/1198-2/152
Transatlantic Exploration Mediterranean International Pty. Ltd. - Türkiye İstanbul Şubesi	Wholesale	16.10.2008 DTS/1801-1/177
Petrol Ofisi Arama Üretim ve Sanayi Ticaret A.Ş.	Wholesale	21.08.2009 DTS/2213-3/193
Petrogas Petrol Gaz ve Paz. Ürün. İnş. San. ve Tic. A.Ş.	Wholesale	21.07.2011 DTS/3332-4/252
Habaş Sınai ve Tıbbi Gazlar İstihsal Endüstrisi A.Ş.	Wholesale	12.06.2003 DTS/152-27/023
Aygaz Doğal Gaz Toptan Satış A.Ş.	Wholesale	15.06.2004 DTS/330-3/056
Enerji Grup Sıvı Doğal Gaz L.N.G. Akar. Pet. Ürün. Top. Sat. A.Ş.	Wholesale	13.07.2004 DTS/341-17/059
İpragaz A.Ş.	Wholesale	09.11.2004 DTS/382-25/69
Güney Doğal Gaz Sanayi ve Tic. A.Ş.	Wholesale	18.11.2004 DTS/386-36/071
Ege Gaz A.Ş.	Wholesale	10.02.2005 DTS/434-25/074
Demirören EGL Gaz Toptan Tic. A.Ş.	Wholesale	24.02.2005 DTS/439-20/077
Akpet Gaz A.Ş.	Wholesale	21.04.2005 DTS/476-13/081
OMV Gaz ve Enerji Satış A.Ş.	Wholesale	02.06.2005 DTS/491-28/087
Selgaz Doğalgaz Dağıtım Pazarlama ve Ticaret A.Ş.	Wholesale	30.06.2005 DTS/507-27/090
Argaz LPG Dolum Tevzii İnşaat San. ve Tic. A.Ş.	Wholesale	07.07.2005 DTS/509-29/092
Or-Can Doğal Gaz Toptan Satış Dağıtım Ltd. Şti.	Wholesale	03.02.2006 DTS/644-15/113
Aytemiz Gaz A.Ş.	Wholesale	31.05.2006 DTS/773-18/127
Aksa Doğal Gaz Toptan Satış A.Ş.	Wholesale	16.11.2006 DTS/979-2/142
Anadolu Doğal Gaz Toptan Satış A.Ş.	Wholesale	03.05.2007 DTS/1180-1/148
EWE Doğalgaz Sanayi ve Ticaret A.Ş.	Wholesale	10.05.2007 DTS/1189-2/150
Turcas Gaz Toptan Satış A.Ş.	Wholesale	17.05.2007 DTS/1198-3/153
OMV Gaz ve Enerji Limited Şirketi	Wholesale	28.02.2008 DTS/1509-1/170
Doğal Enerji İthalat A.Ş.	Wholesale	01.10.2009 DTS/2257-6/194

Medgaz A.Ş.	Wholesale	07.10.2009 DTS/2266-2/196
Pozitif Doğalgaz Toptan Satış A.Ş.	Wholesale	15.12.2009 DTS/2344-3/202
Dotaş Doğalgaz Ticaret A.Ş.	Wholesale	15.12.2009 DTS/2344-5/204
Gastrans Enerji Sanayi ve Tic. A.Ş.	Wholesale	29.12.2009 DTS/2377-3/205
Zorlu Doğal Gaz İthalat İhracat ve Toptan Ticaret A.Ş.	Wholesale	13.04.2010 DTS/2521-1/210
Hattuşa Enerji Gaz (HEGAZ) İthalat San. ve Tic. A.Ş.	Wholesale	26.08.2010 DTS/2730-2/218
Akenerji Doğalgaz İthalat İhracat ve Toptan Ticaret A.Ş.	Wholesale	27.10.2010 DTS/2838-4/226
Socar & Turcas Petrokimya A.Ş.	Wholesale	21.12.2010 DTS/2939-4/232
Seza Doğal Gaz Toptan Satış A.Ş.	Wholesale	28.12.2010 DTS/2965-1/233
Bil Doğalgaz Toptan Satış A.Ş.	Wholesale	19.09.2011 DTS/3425-1/259
GASLINE Doğalgaz Toptan Satış A.Ş.	Wholesale	08.12.2011 DTS/3528-2/263

Firm's Trade Name	Type of License	License Date/ No
Habaş Sınai ve Tıbbi Gazlar İstihsal Endüstrisi A.Ş.	CNG Sale	21.03.2003 CNG/121-16/002
Habaş Sınai ve Tıbbi Gazlar İstihsal Endüstrisi A.Ş.	CNG Sale	21.03.2003 CNG/121-17/003
Habaş Sınai ve Tıbbi Gazlar İstihsal Endüstrisi A.Ş.	CNG Sale	21.03.2003 CNG/121-18/004
Habaş Sınai ve Tıbbi Gazlar İstihsal Endüstrisi A.Ş.	CNG Sale	21.03.2003 CNG/121-19/005
Habaş Sınai ve Tıbbi Gazlar İstihsal Endüstrisi A.Ş.	CNG Sale	21.03.2003 CNG/121-20/006
Habaş Sınai ve Tıbbi Gazlar İstihsal Endüstrisi A.Ş.	CNG Sale	21.03.2003 CNG/121-21/007
Habaş Sınai ve Tıbbi Gazlar İstihsal Endüstrisi A.Ş.	CNG Sale	21.03.2003 CNG/121-22/008
Habaş Sınai ve Tıbbi Gazlar İstihsal Endüstrisi A.Ş.	CNG Sale	14.09.2004 CNG/365-21/062
Habaş Sınai ve Tıbbi Gazlar İstihsal Endüstrisi A.Ş.	CNG Sale	14.09.2004 CNG/365-22/063
Habaş Sınai ve Tıbbi Gazlar İstihsal Endüstrisi A.Ş.	CNG Sale	14.09.2004 CNG/365-23/064
Habaş Sınai ve Tıbbi Gazlar İstihsal Endüstrisi A.Ş.	CNG Sale	20.07.2006 CNG/832-2/133
Habaş Sınai ve Tıbbi Gazlar İstihsal Endüstrisi A.Ş.	CNG Sale	31.08.2006 CNG/903-2/137
Habaş Sınai ve Tıbbi Gazlar İstihsal Endüstrisi A.Ş.	CNG Sale	27.10.2009 CNG/2288-3/198
Akpet Gaz A.Ş.	CNG Sale	10.02.2005 CNG/434-24/073

Akpet Gaz A.Ş.	CNG Sale	03.02.2006 CNG/644-16/114
Akpet Gaz A.Ş.	CNG Sale	20.04.2006 CNG/728-2/122
Akpet Gaz A.Ş.	CNG Sale	20.04.2006 CNG/728-3/123
Akpet Gaz A.Ş.	CNG Sale	31.08.2006 CNG/903-1/136
Akpet Gaz A.Ş.	CNG Sale	22.03.2007 CNG/1135-2/146
Naturelgaz Sanayi ve Ticaret A.Ş.	CNG Sale	05.05.2005 CNG/483-21/084
Naturelgaz Sanayi ve Ticaret A.Ş.	CNG Sale	28.07.2005 CNG/528-28/096
Naturelgaz Sanayi ve Ticaret A.Ş.	CNG Sale	28.07.2005 CNG/528-29/097
Naturelgaz Sanayi ve Ticaret A.Ş.	CNG Sale	09.02.2006 CNG/656-2/117
Emda İnşaat Sanayi ve Maden Ticaret Ltd.Şti.	CNG Sale	19.12.2003 CNG/255-14/036
Emda İnş. San. ve Maden Tic. Ltd.Şti.	CNG Sale	04.06.2009 CNG/2117-1/186
Emda İnş. San. ve Maden Tic. Ltd.Şti.	CNG Sale	04.06.2009 CNG/2117-2/187
Emda İnş. San. ve Maden Tic. Ltd.Şti.	CNG Sale	06.07.2011 CNG/3309-4/248
Kaya Enerji İnşaat San. ve Tic. A.Ş.	CNG Sale	13.04.2004 CNG/312-15/050
Aygaz Doğal Gaz Toptan Satış A.Ş.	CNG Sale	21.07.2005 CNG/521-12/095
İpragaz A.Ş.	CNG Sale	08.09.2005 CNG/544-26/100
İpragaz A.Ş.	CNG Sale	08.09.2005 CNG/544-25/099
İpragaz A.Ş.	CNG Sale	08.09.2005 CNG/544-27/101
Karabörk Gaz Paz. ve Tic. Ltd. Şti.	CNG Sale	04.05.2006 CNG/743-5/126
Karabörk Gaz Paz. ve Tic. Ltd. Şti.	CNG Sale	25.05.2007 CNG/1205-1/154
Gastrans Enerji Sanayi ve Tic.A.Ş.	CNG Sale	22.03.2007 CNG/1135-1/145
Alpe Tekstil Petrol Ürünleri San.ve Tic. A.Ş.	CNG Sale	27.06.2007 CNG/1238-9/158
Tez Oksijen Sanayi ve Ticaret A.Ş.	CNG Sale	31.12.2007 CNG/1448-1/168
Tez Oksijen Sanayi ve Ticaret A.Ş.	CNG Sale	20.10.2011 CNG/3466-5/261
CNG Gaz Sanayi ve Ticaret A.Ş.	CNG Sale	24.07.2008 CNG/1691-6/174
Doğa-Can Petrol Ürünleri Telekomünikasyon İnşaat Turizm Oto. Nak. Ve Tic. Ltd. Şti.	CNG Sale	29.01.2009 CNG/1954-3/181
İnci Enerji LPG Doğalgaz ve Akaryakıt San.Tic.Ltd.Şti.	CNG Sale	21.08.2009 CNG/2213-2/192
Gazkom Doğalgaz Enerji San. ve Tic. Ltd.Şti.	CNG Sale	06.10.2010 CNG/2807-2/223
Tinsa Tıbbi ve Sınai Gazlar San. ve Tic. Ltd. Şti.	CNG Sale	18.05.2011 CNG/3225-4/244
Arar Petrol ve Gaz Arama Ür. Paz. A.Ş.	CNG Sale	14.07.2011 CNG/3324-4/250
Arar Petrol ve Gaz Arama Ür. Paz. A.Ş.	CNG Sale	14.07.2011 CNG/3324-5/251
Yılmazlar Sınai ve Tıbbi Gazlar Paz. San. Tic. Ltd. Şti.	CNG Sale	04.08.2011 CNG/3345-5/254

Firm's Trade Name	Type of License	License Date/ No
Habaş Sınai ve Tıbbi Gazlar İstihsal Endüstrisi A.Ş.	CNG Transmission and Distribution	21.03.2003 CNG/121-15/001
Akpet Gaz A.Ş.	CNG Transmission and Distribution	10.02.2005 CNG/434-23/072
Naturelgaz Sanayi ve Ticaret A.Ş.	CNG Transmission and Distribution	05.05.2005 CNG/483-20/083
Gastrans Enerji Sanayi ve Tic.A.Ş.	CNG Transmission and Distribution	05.05.2005 CNG/483-22/085
İpragaz A.Ş.	CNG Transmission and Distribution	08.09.2005 CNG/544-24/098
Aksa CNG Sıkıştırılmış Doğal Gazİletim Dağıtım ve Satış A.Ş.	CNG Transmission and Distribution	27.10.2005 CNG/570-14/104
Karabörk Gaz Paz. ve Tic. Ltd. Şti.	CNG Transmission and Distribution	04.05.2006 CNG/743-4/125
Aygaz Doğal Gaz İletim A.Ş.	CNG Transmission and Distribution	31.08.2006 CNG/903-3/138
Alpe Tekstil Pet. Ürün. San. ve Tic. A.Ş.	CNG Transmission and Distribution	27.06.2007 CNG/1238-8/157
Tez Oksijen Sanayi ve Ticaret A.Ş.	CNG Transmission and Distribution	31.12.2007 CNG/1448-2/169
Doğalhayat Petrol Ürünleri CNG Gaz İnş. Gıda San. ve Tic. Ltd. Şti.	CNG Transmission and Distribution	28.02.2008 CNG/1509-3/172
ANG Doğal Gaz Taşımacılık Dön. San. ve Tic. Ltd. Şti.	CNG Transmission and Distribution	18.02.2009 CNG/1981-1/182
CNG Gaz Sanayi ve Ticaret A.Ş.	CNG Transmission and Distribution	18.02.2009 CNG/1981-2/183
İnci Enerji LPG Doğalgaz ve Akaryakıt San. Tic. Ltd. Şti.	CNG Transmission and Distribution	26.03.2009 CNG/2032-1/185
Emda İnş. San. ve Maden Tic. Ltd. Şti.	CNG Transmission and Distribution	27.10.2009 CNG/2288-4/199
CNGAZ Pet. Ürünleri Dağ. ve Tic. A.Ş.	CNG Transmission and Distribution	08.04.2010 CNG/2512-2/209
Seralgaz Sınai ve Tıbbi Gazlar İnş. Mal. Tic. ve San. Ltd. Şti	CNG Transmission and Distribution	30.09.2010 CNG/2791-3/220
Gazkom Doğalgaz Enerji San. ve Tic. Ltd. Şti.	CNG Transmission and Distribution	06.10.2010 CNG/2807-1/222
İstanbul CNG İletim ve Dağıtım A.Ş.	CNG Transmission and Distribution	08.12.2010 CNG/2906/230
Tinsa Tıbbi ve Sınai Gazlar San. ve Tic. Ltd. Şti.	CNG Transmission and Distribution	18.05.2011 CNG/3225-3/243
Doğan Oksijen Gaz ve Demir Ürünleri San. Tic. Ltd. Şti.	CNG Transmission and Distribution	08.06.2011 CNG/3265-3/245
Bayram Dilekçi Grup Petrol Gıda İnş. Mad. San. ve Tic. Ltd. Şti.	CNG Transmission and Distribution	06.07.2011 CNG/3309-3/247
Arar Petrol ve Gaz Arama Üretim Pazarlama A.Ş.	CNG Transmission and Distribution	14.07.2011 CNG/3324-3/249
Yılmazlar Sınai ve Tıbbi Gazlar Paz. San. Tic. Ltd. Şti.	CNG Transmission and Distribution	04.08.2011 CNG/3345-4/253
Alfagaz Petrol Ürünleri İnş. San. ve Dış Tic. Ltd.Şti.	CNG Transmission and Distribution	11.08.2011 CNG/3355-2/255

Firm's Trade Name	Type of License	License Date/ No
BOTAŞ	İletim	23.05.2003 DİL/148-17/021

Firm's Trade Name	Type of License	License Date/ No
Habel Sınai ve Tıbbi Gazlar İstihsal Endüstrisi A.Ş.	LNG Transmission	24.07.2003 DİL/164-18/025
Yüksel Seramik Sanayi ve Tic. A.Ş.	LNG Transmission	14.11.2003 DİL/247-17/034
Aygaz Doğal Gaz İletim A.Ş.	LNG Transmission	15.06.2004 DİL/330-2/055
Enerji Grup İletim Nakliyat ve Taşımacılık A.Ş.	LNG Transmission	21.09.2004 DİL/366-29/067
Bizimgaz Ticaret ve Sanayi A.Ş.	LNG Transmission	09.11.2004 DİL/382-24/68
Milangaz LNG İletim Tic. ve San.A.Ş.	LNG Transmission	24.02.2005 DİL/439-19/076
Pargaz Sanayi ve Ticaret A.Ş.	LNG Transmission e	24.03.2005 DİL/465-20/078
Petrol Ofisi Gaz İletim A.Ş.	LNG Transmission	07.07.2005 DİL/509-28/091
Güneş Petrol Ürünleri Nakliyat San. ve Tic. A.Ş.	LNG Transmission	28.11.2005 DİL/584-18/107
Ak-Can Doğal Gaz İletim Ltd. Şti.	LNG Transmission	29.12.2005 DİL/627-13/110
Aksu Doğal Gaz İletim A.Ş.	LNG Transmission	31.05.2006 DİL/773-19/128
Kayalar Likit Naturel Gaz İletim Pet. Ürün. Nak. İnş. İth. İhr. Tic. ve San. Ltd. Şti.	LNG Transmission	24.08.2006 DİL/897-9/135
Egelog Doğalgaz Akaryakıt Taş. Dep. Tur. Ltd. Şti.	LNG Transmission	27.08.2007 DİL/1293-1/161
Bozoklar Petrol Ürünleri Otomotiv ve Tic. Ltd. Şti.	LNG Transmission	12.06.2008 DİL/1641-2/173
Alfagaz Petrol Ürünleri İnş. San. ve Dış Tic. Ltd. Şti.	LNG Transmission	30.09.2010 DİL/2791-4/221
TLS Lojistik A.Ş.	LNG Transmission	11.11.2010 DİL/2876-3/228
Ultrans Taş. San. ve Tic. Ltd. Şti.	LNG Transmission	24.02.2011 DİL/3095-2/236
Osman Türkoğlu Nakliyat Otomotiv ve Gıda Ürün. Tic. San. Ltd. Şti.	LNG Transmission	12.05.2011 DİL/3211-2/242
Kaçmazlar Lojistik Pet. İnş. Alter. Yak. San. ve Tic. A.Ş.	LNG Transmission	06.07.2011 DİL/3309-2/246
Ege Petrol Ürünleri ve Day. Tük. Mal. Taş. San. ve Tic. Ltd. Şti.	LNG Transmission	07.09.2011 DİL/3410-3/257
Urla Makina Sanayi ve Ticaret A.Ş.	LNG Transmission	20.10.2011 DİL/3466-4/260

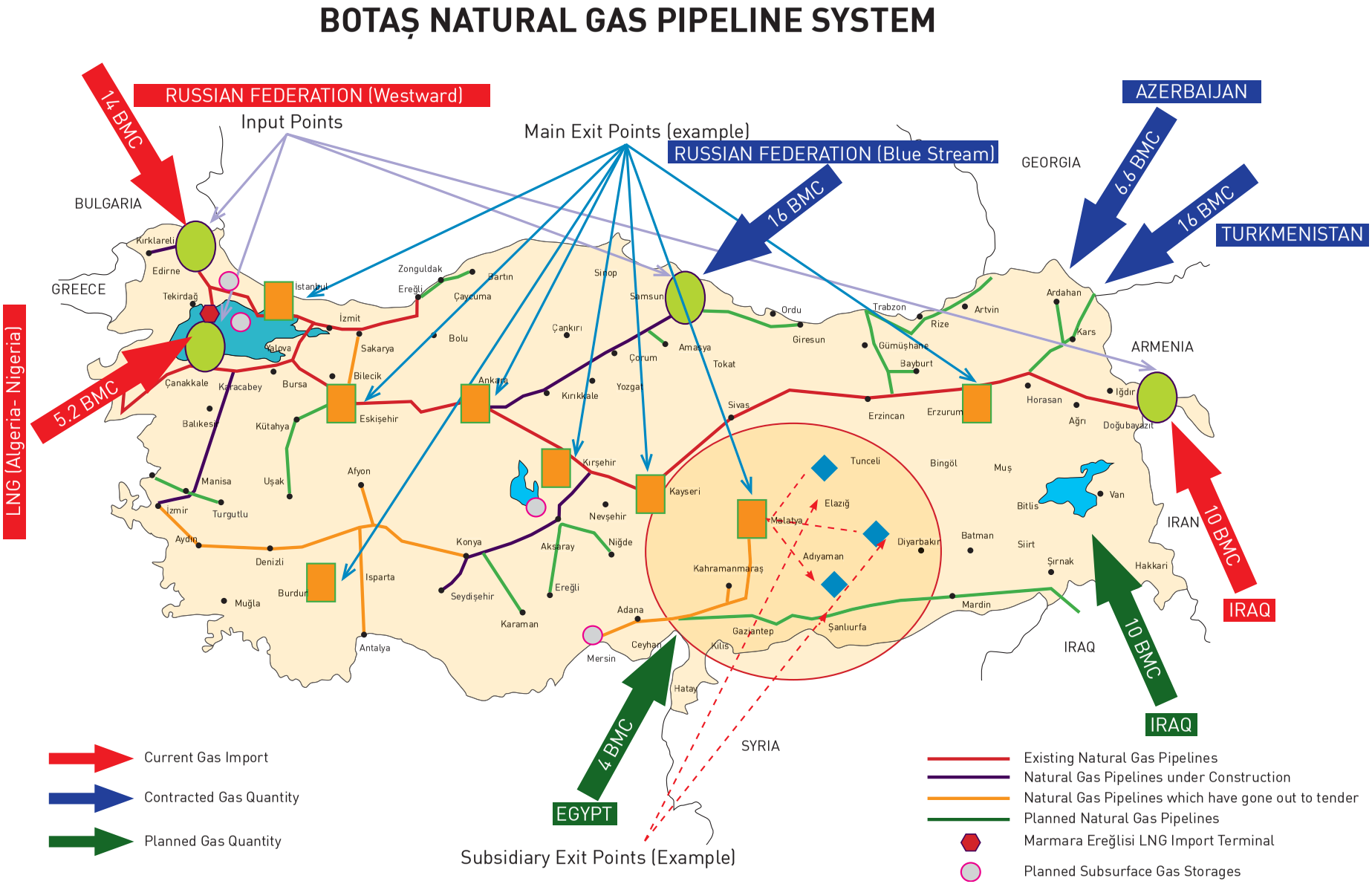
Firm's Trade Name	Type of License	License Date/ No
Agdaş Adapazarı Gaz Dağıtım A.Ş.	Distribution	07/08/2003 DAG/178-14/026
İzgaz İzmit Gaz Dağ. San. ve Tic. A.Ş.	Distribution	28/08/2003 DAG/183-33/028
Bahçeşehir Gaz Dağıtım A.Ş.	Distribution	28/08/2003 DAG/183-34/029
Bursa Şehiriçi Doğal Gaz Dağıtım Tic. ve Taah. A.Ş.	Distribution	18/09/2003 DAG/211-13/030

Esgaz Eskişehir Şehiriçi Doğal Gaz DağıtımTic. ve Taah. A.Ş.	Distribution	18/09/2003 DAG/211-14/031
Kayserigaz Kayseri Doğal Gaz Dağıtım Paz. ve Tic. A.Ş.	Distribution	02/10/2003 DAG/216-27/032
Gaznet Şehir Doğal Gaz Dağıtım A.Ş.	Distribution	05/12/2003 DAG/250-40/035
Çinigaz Doğal Gaz Dağ. San. ve Tic. A.Ş.	Distribution	13/01/2004 DAG/288-6/037
Çorlu Doğalgaz Dağıtım A. Ş.	Distribution	27/01/2004 DAG/290-22/038
Palen Enerji Doğal Gaz Dağıtım Endüstri ve Tic. A.Ş.	Distribution	06/02/2004 DAG/295-9/039
İngaz İnegöl Gaz Dağıtım San. ve Tic. A.Ş.	Distribution	10/02/2004 DAG/298-26/041
Palgaz Doğal Gaz Dağıtım Tic. ve San. A.Ş.	Distribution	10/02/2004 DAG/298-27/042
İgdaş İstanbul Gaz Dağ. San. ve Tic. A.Ş.	Distribution	17/02/2004 DAG/299-13/043
Trakya Doğal Gaz Dağıtım A.Ş.	Distribution	23/02/2004 DAG/301-11/044
Çorum Doğal Gaz Dağıtım San. ve Tic. A.Ş.	Distribution	16/03/2004 DAG/306-39/045
Aksa Bandırma Doğal Gaz Dağ. A.Ş.	Distribution	23/03/2004 DAG/308-20/046
Aksa Balıkesir Doğal Gaz Dağ. A.Ş.	Distribution	30/03/2004 DAG/309-25/047
Aksa Sivas Doğal Gaz Dağıtım A.Ş.	Distribution	06/04/2004 DAG/311-15/049
Aksaray Doğal Gaz Dağıtım A.Ş.	Distribution	25/05/2004 DAG/321-17/051
Kırgaz Kırıkkale-Kırşehir Doğal Gaz Dağıtım Paz. ve Tic. A.Ş.	Distribution	04/06/2004 DAG/325-30/053
Netgaz Şehir Doğal Gaz Dağıtım A.Ş.	Distribution	22/06/2004 DAG/332-28/057
Samgaz Doğal Gaz Dağıtım A.Ş.	Distribution	06/07/2004 DAG/336-12/058
Aksa Düzce-Ereğli Doğal Gaz Dağıtım A.Ş.	Distribution	03/08/2004 DAG/353-14/061
Aksa Gemlik Doğal Gaz Dağıtım A.Ş.	Distribution	21/09/2004 DAG/366-28/066
Armagaz Arsan Marmara Doğal Gaz Dağıtım A.Ş.	Distribution	09/11/2004 DAG/382-26/070
Uşak Doğal Gaz Dağ. San. ve Tic. A.Ş.	Distribution	14/04/2005 DAG/475-10/079
Polatlı Doğal Gaz Dağıtım A.Ş.	Distribution	23/06/2005 DAG/500-28/089
İzmirgaz Şehir İçi Doğal Gaz Dağıtım Tic. ve Taah. A.Ş.	Distribution	07/07/2005 DAG/509-30/093
Kapadokya Doğal Gaz Dağıtım Anonim Şirketi	Distribution	29/09/2005 DAG/555-20/102
Aksa Malatya Doğal Gaz Dağıtım A.Ş.	Distribution	20/10/2005 DAG/565-24/103
Aksa Manisa Doğal Gaz Dağıtım A.Ş.	Distribution	27/10/2005 DAG/570-15/105
Bilecik-Bolu Doğal Gaz Dağıtım A.Ş.	Distribution	28/11/2005 DAG/584-17/106
Arsan Maraş Doğal Gaz Dağıtım A.Ş.	Distribution	23/12/2005 DAG/605-18/109
Trakya Bölgesi Doğal Gaz Dağıtım A.Ş.	Distribution	25/01/2006 DAG/640-12/111
Sürmeli Doğal Gaz Dağ. San. ve Tic. A.Ş.	Distribution	25/01/2006 DAG/640-13/112

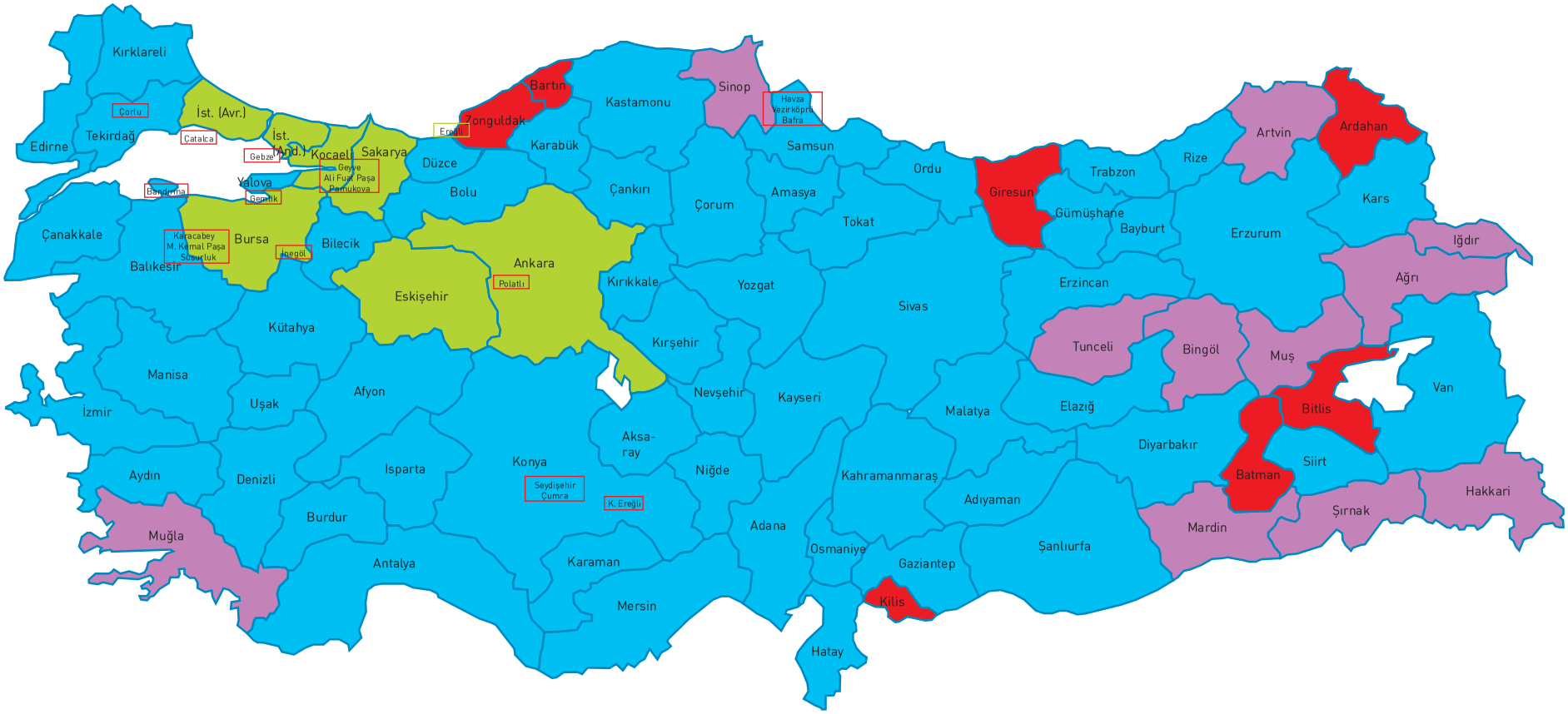
Kargaz Doğal Gaz Dağıtım San. ve Tic. A.Ş.	Distribution	09/02/2006 DAG/656-01/116
Kentgaz Denizli Doğal Gaz Dağ. A.Ş.	Distribution	16/02/2006 DAG/659-1/118
Gazdaş Gaziantep Doğal Gaz Dağ. A.Ş.	Distribution	24/02/2006 DAG/665-1/119
Aksa Çanakkale Doğal Gaz Dağ. A.Ş.	Distribution	20/04/2006 DAG/728-1/121
Aksa Şanlıurfa Doğal Gaz Dağ. Ltd. Şti.	Distribution	04/05/2006 DAG/743-3/124
Torosgaz Isparta-Burdur Doğal Gaz Dağıtım A.Ş.	Distribution	28/06/2006 DAG/806-1/129
Kargaz Kars-Ardahan Doğal Gaz Dağıtım Paz. Taah. San. ve Tic. Ltd. Şti.	Distribution	06/07/2006 DAG/817-1/130
Karaman Doğal Gaz Dağıtım Ltd. Şti.	Distribution	14/07/2006 DAG/825-1/131
Aksa Afyon Doğal Gaz Dağıtım A.Ş.	Distribution	20/07/2006 DAG/832-1/132
Erzingaz Doğal Gaz Dağıtım A.Ş.	Distribution	04/08/2006 DAG/850-1/134
Aksa Tokat-Amasya Doğal Gaz Dağıtım A.Ş.	Distribution	14/09/2006 DAG/916-8/139
Aksa Mustafakemalpaşa-Susurluk-Karacabey Doğal Gaz Dağıtım A.Ş.	Distribution	21/09/2006 DAG/922-2/140
Olimpos Doğal Gaz Dağıtım A.Ş.	Distribution	12/10/2006 DAG/945-1/141
Aksa Gümüşhane-Bayburt Doğal Gaz Dağıtım A.Ş.	Distribution	01/03/2007 DAG/1114-1/143
Aksa Karadeniz Doğal Gaz Dağ. A.Ş.	Distribution	15/03/2007 DAG/1129-1/144
Aksa Elazığ Doğal Gaz Dağıtım A.Ş.	Distribution	29/03/2007 DAG/1143-1/147
Diyarbakır Doğal Gaz Dağıtım A.Ş.	Distribution	10/05/2007 DAG/1189-1/149
Akmercangaz Doğal Gaz Dağıtım San. ve Tic. Ltd. Şti.	Distribution	27/06/2007 DAG/1238-7/156
Aksa Ordu-Giresun Doğal Gaz Dağıtım A.Ş.	Distribution	19/07/2007 DAG/1258-5/160
Başkent Doğal Gaz Dağıtım A.Ş.	Distribution	31/08/2007 DAG/1298/162
Aksa Van Doğal Gaz Dağıtım Anonim Şirketi	Distribution	18/10/2007 DAG/1346-1/164
Selçuk Doğal Gaz Dağıtım A.Ş.	Distribution	22/11/2007 DAG/1383-6/167
Aksa Gaz Dağıtım A.Ş.	Distribution	28/02/2008 DAG/1509-2/171
Aydın Doğal Gaz Dağıtım A.Ş.	Distribution	21/8/2008 DAG/1725-1/175
Siirt-Batman Doğal Daz Dağ. A.Ş.	Distribution	24/09/2008 DAG/1771-1/176
Akmercan Gepa Doğal Gaz Dağıtım San. ve Tic. Ltd. Şti.	Distribution	03.03.2011 DAG/3104-3/237
Akmercan Delta Doğal Gaz Dağıtım San. ve Tic. Ltd. Şti.	Distribution	12.04.2011 DAG/3160-1/240
Akmercan Batıkar Doğal Gaz Dağıtım San. ve Tic. Ltd. Şti.	Distribution	22.03.2012 DAG/3743-1/267

Note: Detailed company and licensing information for licensed companies are being published and updated in the section **"Licenses in Force"** under the heading of **"Natural Gas Market Licensing Operations"** on the EMRA website, www.emra.org.tr.

APPENDIX 2: MAP OF NATURAL GAS TRANSMISSION SYSTEM



APPENDIX 3: MAP OF NATURAL GAS DISTRIBUTION ACTIVITIES



Cities where natural gas distribution activity was being carried out prior to the Natural Gas Market Law No. 4646.

Cities for which Natural Gas Distribution Licenses were awarded and where gas supply started.

Cities for which Natural Gas Distribution Licenses were awarded but where gas supply has not started yet.

Cities for which Natural Gas Distribution Licenses have not been awarded.

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