

# The Reform in the Turkish Natural Gas Market: A Critical Evaluation

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**Abstract:** Turkey is in a strategically advantageous position in terms of its natural gas market. Being in the middle of Europe and energy-rich countries of Central Asia, it can be an energy corridor between these two ends. It can import gas from a number of countries and diversify its sources. This situation may also provide motivation for a competitive gas market. The recent reform in the market, which began in 2001, was an attempt to strengthen the natural gas market to this end. However, the reform has not worked out as expected so far. We focus on the legal structure and economic consequences of the legal change within the international economic relations.

**Keywords:** Turkey; Natural Gas Market; Energy Policy; Regulation

## 1. Introduction

Turkey is in a strategically advantageous position in terms of its natural gas market. Being in the middle of Europe and the energy-rich countries of Central Asia, it can be an energy corridor between these two ends. It can import gas from a number of countries and diversify its sources. This situation may also provide motivation for a competitive gas market. The recent reforms in the market, which began in 2001, was an attempt to strengthen the natural gas market to this end. However, the reforms have not worked out as expected so far.

A recent case in point is the gas crisis in the early days of 2006. Ukraine and Iran reduced gas exports to Turkey.<sup>26</sup> This unexpected supply shortage gave signals about the weakness of the industry and raised questions about the sustainability of the current system. The reasons behind this relatively small incidence offer some clues about the institutional problems of the industry. To begin with, Turkey's natural gas consumption depends heavily on importation. Second, Turkey does not have adequate natural gas storage capacity, and natural gas wellheads are in short supply. Third, natural gas purchase contracts have been signed in accordance with base annual purchase. Exporter countries can deliver the contracted gas any time within the year. The contracts have not taken into consideration the fluctuations that would occur within the year. These three reasons were the major factors behind the 2006 crisis, and created a frail market environment. In addition to institutional factors, the market structure makes things worse. BOTAS, the state owned company, has a monopoly on import, transmission and distribution segments of the market. These problems leave the market

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<sup>26</sup> Iran defended the cut in supply on the basis of technical problems and a heavy winter. The contract with Iran sets a limit for annual importation. It does not require a steady flow of gas throughout the year. Political reasons also had some role in Iran's behavior. To a lesser extent, Ukraine's political troubles with Russia intensified the shortage. During the crisis with Russia, Ukraine used some of the gas it transports to Turkey.

vulnerable to any external shocks and limit the success of the restructuring effort. Even small changes in supply structure may generate larger effects in the market.<sup>27</sup>

The literature on Turkey's natural gas market and its reform is too small, with the exception of recent IEA and OECD studies. There is almost no study of the Turkish natural gas market. It is usually discussed within the context of energy markets. The lack of extensive discussions of the above mentioned issues and the market structure is the driving force of this paper. Our goal is to provide a general picture of market reform and draw attention to inherent problems of the industry.

The paper's structure is as follows. In the next section, we focus on the political economy of the natural gas market with an emphasis on international economic relations. Then, we turn to the reform of the market and critically discuss the restructuring effort. In the last section, we briefly address regulatory issues and potential conflicts.

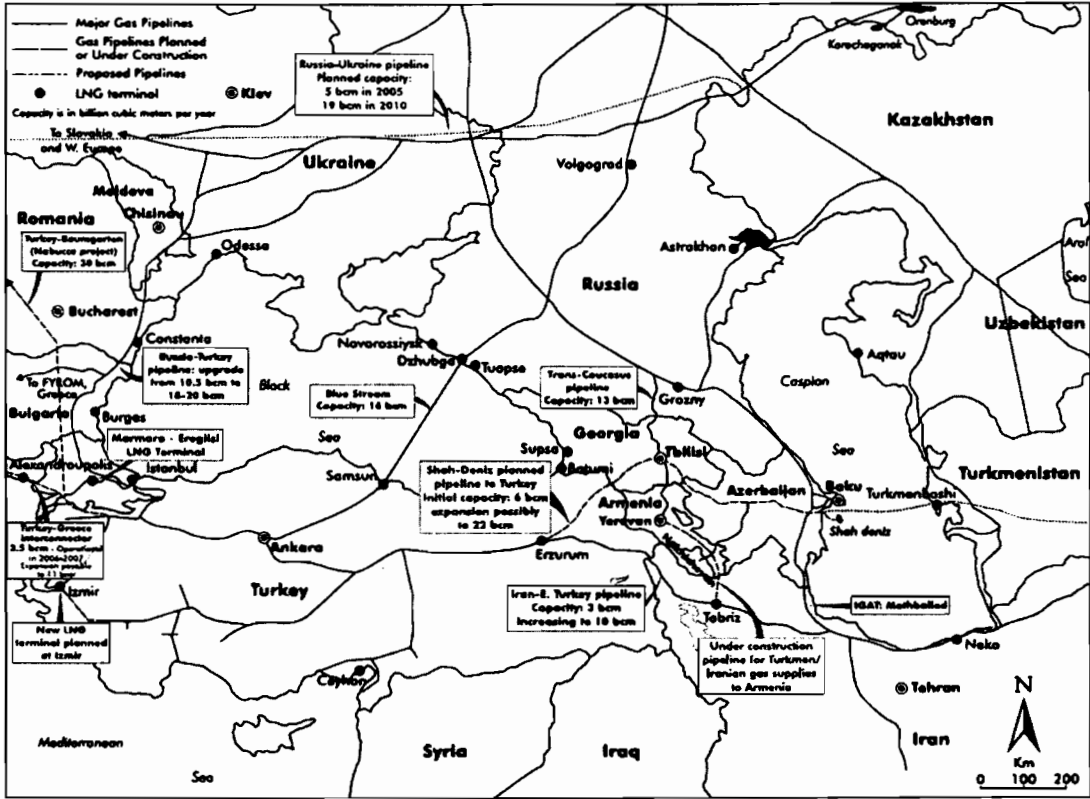
## **2. Political Economy of Turkey's Natural Gas Industry**

Turkey strives to be the Eurasia Energy Corridor between eastern supply and western demand. It is expected that the world's biggest natural gas investments will be made in Turkey in the next two decades (Kiliç, 2006; Tunc et al., 2006). It has a natural connection because of its strategic location between European markets and Central Asian and Middle Eastern countries, as is shown in Figure 1. European countries spend 300 billion dollars each year for energy imports and almost three quarters of the global gas reserves are in the Caspian region, Middle East and Russia. In the next two decades, the European demand is expected to increase from 472 billion cubes meter (bcm) to 786 bcm (IEA, 2005b). Quite naturally, Turkey tries to be part of the link between increasing demand and supply. It tries to develop new gas supply routes, increase co-operation among the neighboring countries and press on the integration of Turkish and European natural gas markets. The integration to the EU market is expected to bring resource diversity, supply security, and incentives for a competitive market.

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<sup>27</sup> Any service disruption in natural gas supply affects the electricity supply as well, because of the dependency of electricity on gas. On the relationship between electricity and gas markets see Oguz and Cetin (2005) and Ozkivrak (2005).

Fig. 1. A Natural Gas Map for the Region (IEA, 2005b).



Turkey's plans to be the Energy Corridor fit well with the geopolitical structure of the region. Security considerations make Anatolia an ideal ground for natural gas pipelines. The recent regulatory reform in the industry opens the door for a competitive market structure in the future (Correlje and Linde, 2006).

The struggle to dominate the Caspian region gas resources brings in old political tensions in a new cloak. Countries in the region and the United States try to gain a greater share in gas reserves.<sup>28</sup> The struggle over alternative routes of gas pipelines creates intense tensions between countries. The United States, Turkey, Georgia and Azerbaijan favor the route that passes through Anatolia, bypassing Iran and Russia (Alam, 2002). Turkey and the United States are strategic partners, having compatible goals in the region. Azerbaijan also supports Turkey for cultural and political reasons. To the same end, Georgia sees Turkey as a vital partner in its efforts to join European Union and NATO. However, Turkey is dependent on Russian gas. Russia supplies 66 % of Turkey's natural gas. Gazprom, the Russian state owned gas company, has recently acquired 40 % of Bosphorus Gas, a distribution company in Turkey, and plans to be more active in the Turkish market as in other European markets (IEA, 2005a: 112).

Another option is to transport natural gas via the Bosphorus. However, safety, security and environmental considerations weaken the feasibility of this alternative. Turkey defies this route because of the congestion in straits. Baku-Tblisi-Ceyhan and the Blue Stream pipelines find more support from Turkish politicians and bureaucrats

<sup>28</sup> Lutz Klevevan (2004), provocatively, calls this as the new great game with reference to the 19th century imperial struggles between Great Britain and Russia. Rising energy prices, vast natural gas resources and political instability are dominant variables of the current strategic game in the region.

(Yukseket al., 2005). Eventually, the political preferences of the countries in the region will determine the direction of economic stability in the Turkish natural gas market.

Turkey's aspiration to be the Eurasia Energy Corridor is better understood by looking into other related projects. Turkey's three main cross-border gas pipeline projects are;

Turkey-Greece Natural Gas Pipeline Project,

Turkey-Bulgaria-Romania-Hungary-Austria Natural Gas Pipeline (Nabucco) Project,

South Caucasus Pipeline (SCP) project.

The Turkey-Greece Natural Gas Pipeline Project was initiated to meet the European gas demand. Turkey signed a \$300 million deal with Greece to extend an Iranian natural gas pipeline to Greece in March 2002. Later, Italian EDISON-GAS, BOTAS and DEPA (Greek Gas Company) signed an agreement. They applied for the funding from the EU TEN Programme, following the pre-feasibility report phase. EU granted necessary funds for the Italy interconnection in July 2003. Consequently, the Inter connector Turkey-Greece Project became the Inter connector Turkey-Greece-Italy (Kiliç, 2006) and natural gas is expected to flow in 2008 (EMRA, 2004).

Another important project, the Shah Deniz pipeline project, will connect the Central Asian natural gas resources to the Turkish grid. This was signed to transport Azerbaijan gas to Turkey as a purchase and sales agreement in 2001, with expected gas deliveries in 2006 and completion by 2012<sup>29</sup>. This project is considered as the first significant step of Caspian-Europe natural gas supplies.

Table 1. Turkey's Natural Gas Purchase Projects (2006), BOTAS, [www.botas.gov.tr](http://www.botas.gov.tr).

Existing Contracts	Amount (Plato) (Bcm/year)	Sign Date	Year	Operation
Russian Federation (West)	6	14 February 1986	25	Working
Algeria (LNG)	4	14 April 1988	20	Working
Nigeria (LNG)	1.2	9 November 1995	22	Working
Iran	10	8 August 1996	25	Working
Russian Federation (Black Sea)	16	15 December 1997	25	Working
Russian Federation (West)	8	18 February 1998	23	Working

Current contracts and projects remain short of satisfying Turkey's demand, not to mention any transportation to Europe. Supply shortages prompted Turkey to undertake new projects. Among these new contracts are TransCaspian Turkmenistan-Turkey-Europe Natural Gas Pipeline Project, Azerbaijan Natural Gas Pipeline Project, Iraq-Turkey Natural Gas Pipeline Project, and Egypt-Turkey Natural Gas Pipeline Project (BOTAS, 2004).<sup>30</sup>

<sup>29</sup> <http://www.tpao.gov.tr/rprte2/ydpg.htm>, (06.02.2006).

<sup>30</sup> Egypt-Turkey project has started with the contract in February 2006. Gas delivery is expected to start in 2008. MENR sees this project as an important step toward supply diversity.

### 3. Regulation of the Turkish Natural Gas Market

Turkish natural gas industry was state owned and vertically integrated through 1980s and 1990s. As a part of energy markets restructuring<sup>31</sup>, the legal structure of the natural gas market was reformed in 2001 with a new law.<sup>32</sup> The new law was a first step toward gradual liberalization and vertical separation in the market.

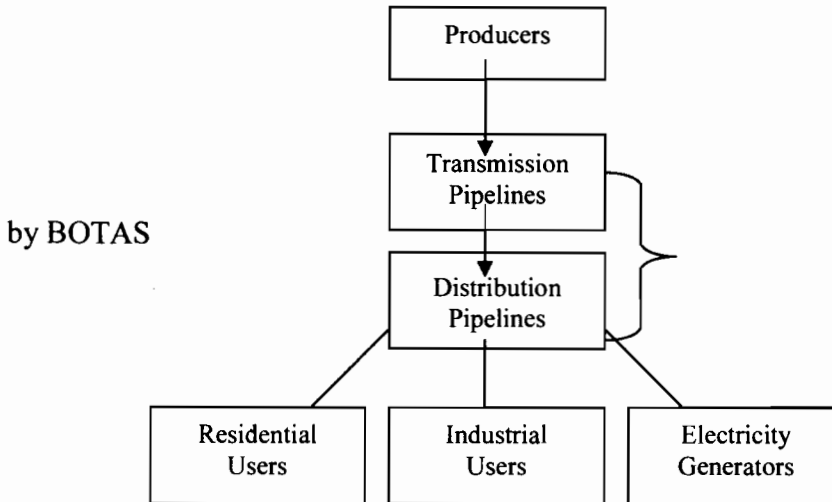
#### 3.1 Industry Structure before the New Law and the Reasons for Restructuring

Public utilities were state enterprises in Turkey until 1990s. Fiscal crises, inadequate investments, poor quality of service, negative effects of rent seeking, and external pressures pushed the regulatory reform in the last decade (Oguz and Cetin, 2005; Mazzanti ve Biancardi, 2005; OECD, 2002). The same forces also played a crucial role in reforming the natural gas market.

Turkey's natural gas consumption has increased rapidly for the last two decades. Economic growth and increasing use of natural gas in electricity, agriculture and household have kept demand soaring. However, gas production and distribution could not keep up with the increasing demand. At present, Turkey's gas production covers only 3.8 % of the consumption, because of very limited indigenous resources (Tunc et al., 2006: 51).

BOTAS, which was founded to transport Iraq's crude oil in 1974, dominates the natural gas market. In 1987, the duties and responsibilities of BOTAS were expanded to include natural gas transportation and trade activities. It was granted monopoly rights on natural gas import, distribution, sales and pricing in 1990.<sup>33</sup> As a state owned company, it controlled transmission and distribution as well.

Fig. 2. The Industry Structure before the New Law



<sup>31</sup> Modern literature on regulation, with the motto of 'competition where feasible, regulation where not', suggests that regulation should be confined to natural monopoly elements of networks and competition should be the norm for the rest (Joskow, 2005; Newbery, 2002; Crew and Kleindorfer, 1999).

<sup>32</sup> Law no.4646, d. 02.05.2001

<sup>33</sup> Decree no. 397, d. 09.02.1990.

In 1995, BOTAS, which was formerly under the control of TPAO, was restructured as an independent State Owned Enterprise because of increasing natural gas operations. Its activities related to the natural gas were expanded as follows;<sup>34</sup>

to accomplish drilling, production, transportation, storage, and refining of imported gas,

to construct natural gas pipelines,

to acquire or lease existing pipelines,

to transport natural gas via the pipelines,

to buy and sell natural gas transported in the pipelines (BOTAS, 2004).

BOTAS has continued its dominant role in the market, which is one of the institutional factors that limited the role of competition and created incentives for reform. BOTAS's inability to expand the service to households and establish a healthy market environment was another indicator of the necessity of the reform.

Another reason for the restructuring is the absence of underground gas storage facilities. The lack of reserves for balancing fluctuations and emergencies reinforces non-competitive forces in the industry. The above-mentioned shortage in the early days of 2006 reveals potential consequences of a fragile market structure without adequate reserves. For institutional and security concerns, Turkey needs to build a sufficient gas storage and diversify its suppliers. Under BOTAS's control, neither goal has been attained.

### **3.2. The New Law and the Changing Structure of the Industry**

The key factors in the restructuring of natural gas market are the Natural Gas Market Law (NGML), Energy Market Regulatory Authority (EMRA) and the direction of the market after restructuring. NGML's aim is the 'liberalization' of the natural gas market. This definition is slightly different from the electricity market law, which emphasizes private law and competition.

#### **3.2.1. NGML**

NGML, enacted in 2001, is the main regulatory statute of the natural gas market. The new legal environment is projected to encourage privatizations, establish a more competitive environment and prepare the ground for the integration to the EU natural gas market by harmonizing regulations.

As in the case of electricity, NGML authorizes EMRA as the independent regulator.<sup>35</sup> Companies are required to obtain licenses from EMRA for transmission, export, import, wholesale, distribution and storage activities. Licenses are granted for a minimum 10 and maximum 30 years.

EMRA applies an incentive-based rate of return formulation in licenses and sets single prices for storage, transmission, distribution, wholesale and retail facilities. These licenses also include inflation adjustments for prices. EMRA evaluates tariffs,

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<sup>34</sup> Decree of Council of Ministers, No. 95/6526

<sup>35</sup> See Oguz and Cetin (2005) and Ozkivrak (2005) for general discussions of the electricity market reform in Turkey.

efficiency, and safety of facilities regularly. Thus, NGML provides the legal ground for supply security and 'fair' rates of return for companies.

NGML unbundles the market and sets up the legal ground for privatizations. Privatizations began with city distribution and storage facilities in Adapazari, Bursa and Eskisehir regions.<sup>36</sup> Others are expected to follow (IEA, 2005a: 99). The law requires the vertical disintegration of BOTAS after 2009. Then, BOTAS will sell 10% of its share on gas import contracts to private companies in order to reinforce competition. The law limits the amount of an importer company can buy from abroad to 20% of the national consumption. Similarly, importers, wholesalers and distributors cannot have market shares more than 20% to ensure that competition will be institutionalized. Distribution companies cannot buy more than half of their gas from a single wholesaler or importer. The law gives discretion to EMRA to change these ratios. National market shares also limited to the same ratio.

In addition, transmission and storage companies cannot discriminate among their customers, given the availability of capacity and absence of financial risks related to contracts. The law also gives the right to build storage facilities to third parties.

### **3.2.2. EMRA**

EMRA was initially established in 2001 in accordance with the Electricity Market Law, No.4628, on 03.03.2001 as Electricity Market Regulatory Authority. The authority's name became Energy Market Regulatory Authority with NGML. EMRA is administratively independent and financially autonomous.<sup>37</sup> While it is administratively related to MENR, it is independent in its authority over the market.<sup>38</sup> Its budget is outside the consolidated state budget and not under the supervision of the Higher Court of Accounts, Sayistay. The major source of its income is the fees it collects from the industry.

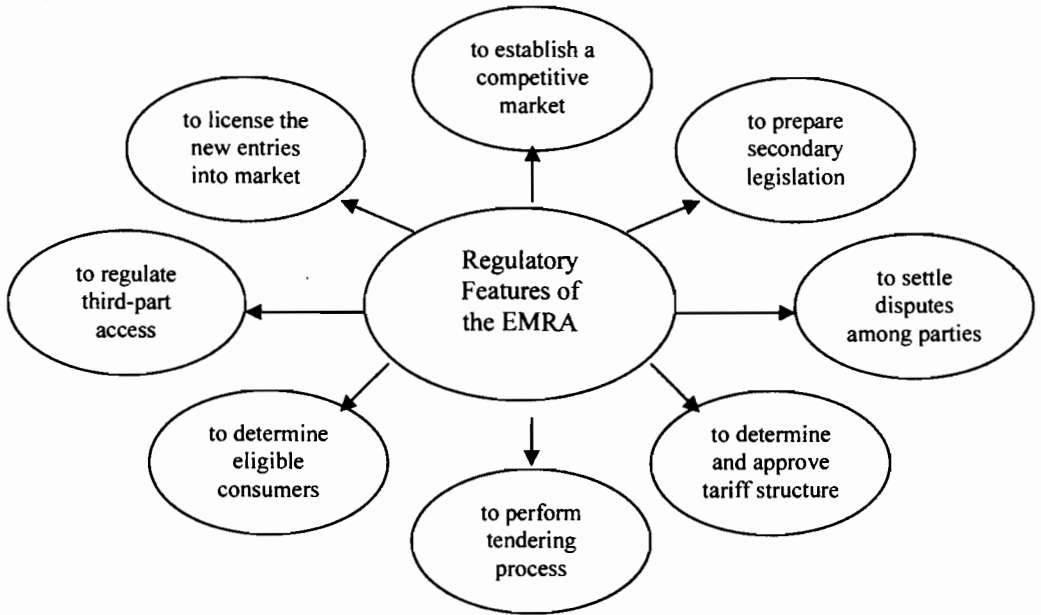
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<sup>36</sup> The choice of distribution as the first step toward full privatization may reflect both economic and political preferences. On the one hand, as in electricity, distribution segment is crucial for the efficient working of other segments. On the other hand, the nature of the distribution segment brings about suspicions about potential public choice issues, even though there is not any empirical data to test this hypothesis.

<sup>37</sup> In 2003 the regulatory responsibilities of EMRA was expanded to include the petroleum market with Law no. 5015.

<sup>38</sup> However, the recent Higher Planning Council Decision on electricity turned over some of the rights and responsibilities of EMRA to the Ministry (Oguz and Cetin, 2005).

Fig. 3. Regulatory Features of the EMRA



As shown in figure 3, the regulatory features of the EMRA related to natural gas market are;

to determine and publish secondary legislation and the opinion and suggestions of the Authority with regard to the plans, policies and applications regarding natural gas market activities,

to ensure the performance of the duties of the Authority for execution of the rights and obligations arising from the international agreements regarding the natural gas market activities,

to approve all regulations related to the natural gas market activities, on which the Authority has been authorized as per the provisions of the Natural Gas Market Law, and to ensure the execution thereof,

to enforce regulated third party access, to determine eligible customers over time,

to take, implement and oversee all kinds of decisions regarding issue of licenses and certificates as provided in the Natural Gas Market Law as well as the compliance with and termination of such licenses and certificates,

to organize tendering process for natural gas distribution licenses of the cities,

to regulate procedures and principles regarding the formation of tariff and price structures in transmission and distribution facilities where competition is non existent or insufficient,

to approve the tariffs regarding the activities indicated in the Natural Gas Market Law or to decide on tariff revisions,

to decide on filing applications with any legal or administrative authority for purposes including litigation and enforcement of any penalty or sanction as part of the Board's authority to supervise, carry out preliminary investigations and inquiries concerning the natural gas market operations,



to settle the disputes among legal entities or between legal entities and consumers arising from the implementation of Natural Gas Market Law (EMRA, 2004; Atiyas and Dutz, 2005).

The main responsibility of EMRA concerning the market is to set up and implement regulations to ensure the establishment of a competitive natural gas market where all market segments will be open to new entrants. For this reason, BOTAS's activities have also been regulated or controlled by EMRA until BOTAS's market share in import decreases 20% in 2009.

EMRA regulates and approves transmission, storage and wholesale tariffs, and all retail tariffs, until competition is well established.<sup>39</sup> The secondary legislation has been issued, including regulations for licenses, tariffs, internal installations, market certificates, transmission network operation, distribution and consumer services and facilities.

EMRA is responsible for organizing tenders for natural gas distribution licenses in cities. The tender process was carried out in 17 cities in 2003 and in almost 20 cities in 2004 (IEA, 2005a). As of 2006, EMRA issued 13 transmission, 33 distribution, and 13 wholesale licenses.

EMRA is responsible for solving disputes of access to the transmission and distribution system and approving investment plans by transmission and distribution companies. In 2004, 64 complaints were received regarding the natural gas market. These include 30 complaints on access demand and issues arising from contracts, 9 on meters, 14 on tariffs, 3 on invoices and 8 on amendments made in the legislation. 53 complaints have been concluded in the same year (EMRA, 2004). It also has responsibility for certain<sup>40</sup> safety regulations, including construction and services of gas facilities. EMRA is also responsible to monitor that prices reflect costs of investment. Companies calculate rates based on future cost projections. Turkey has preferred uniform-ceiling rates and a 'fair' rate of return. Uniform-ceiling pricing is an attempt to close the difference between household and industrial use, even if it does not eliminate cross-subsidies fully. Gas prices for industrial consumers are above the average in comparison to other IEA member countries. On the other hand, household prices are below the average. In the past ten years, price increases were reflected mostly on industrial consumers rather than residential consumers, as a political choice. EMRA, as in the case of electricity, tries to introduce cost-based pricing into the market.

### **3.2.3. The New Structure of the Market**

The current regulatory reform will change the market structure substantially in the long term. To this end, NGML unbundles the market vertically under different ownerships by separating BOTAS into companies in transmission, trading, and storage facilities after 2009. NGML repeals BOTAS's monopoly rights over imports, distribution, storage and the sale of natural gas. The adaptation of the economic structure to the legal form will be gradual. During the transition period, BOTAS is required to transfer the discretions on the import facilities and contracts to private sector

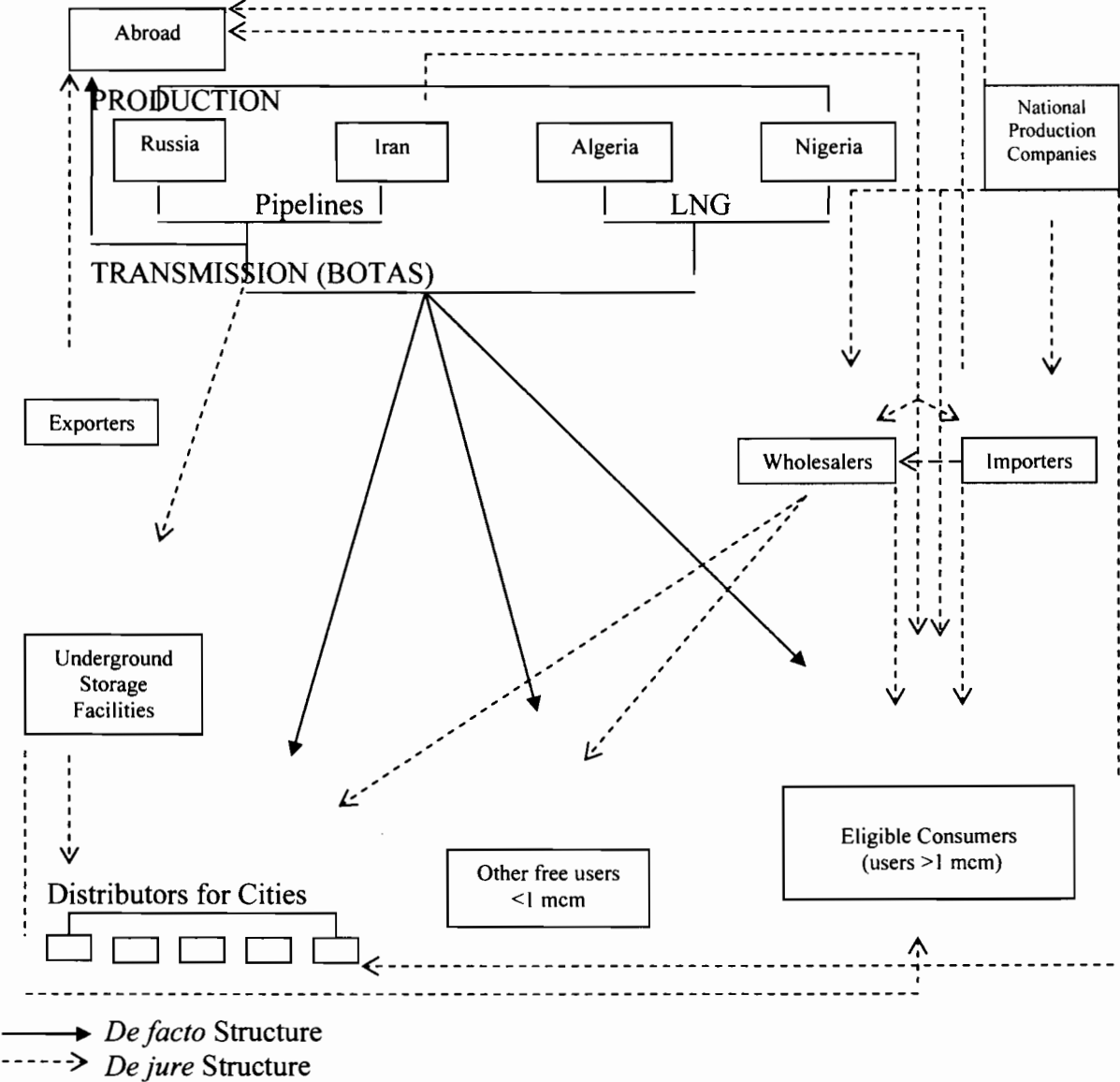
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<sup>39</sup> Apparently, there is no measure or timetable to determine whether competition is 'well' established. EMRA, as a bureaucratic entity, is a candidate to be an impediment to its own goals.

<sup>40</sup> Other government bodies, including the Ministry of Industry and Commerce, have also some regulatory power of social regulations in the industry.

participants so as to reduce its market share to 20 percent. Each year, BOTAS is required to transfer at least 10% of its total share in contracts to private parties. Figure 4 offers an outline of the new market structure.

Fig. 4. The New Structure of the Industry



**Production**

The Petroleum Law, No.6326, regulates natural gas exploration and production activities. According to this law, the General Directorate of Petroleum Affairs grants exploration and operating licences. Production activity is not deemed as a market activity. EMRA does not have authority over exploration activities.<sup>41</sup>

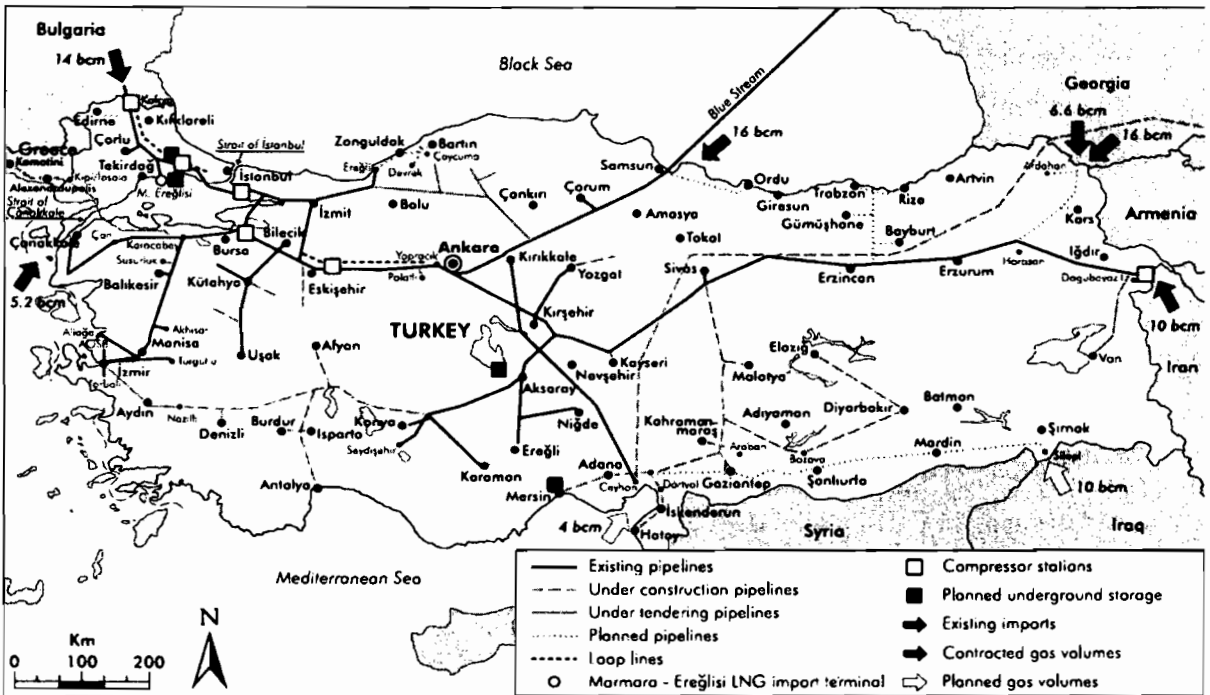
<sup>41</sup>Leaving exploration and generation outside the jurisdiction of EMRA, because of legal and technical difficulties, might be a problem in establishing a competitive market in natural gas, even though it is too early to see the direction of the market at this stage.

Limited amount of reserves hold back the development of production capacity in Turkey. Important producers are TPAO, Thrace Basin and Amity Oil. Producers can sell produced gas to importers, wholesalers, distributors or free consumers by getting wholesaler license. Producers can sell 20 percent of their annual production to free consumers directly. They have to sell the rest through importers, distributors or wholesalers. They can also export the gas with an exporter license.

*Transmission*

Third party access to transmission grid is a crucial element of institutionalizing competition in the natural gas market. According to NGML, the transmission company is obliged to connect demanding legal users to the ‘most appropriate’ grid in one year.<sup>42</sup> EMRA has the dispute resolution authority with respect to transmission issues. The transmission company makes transportation contracts with importers, wholesalers, producers and exporters. It also enters into delivery contracts with producers, free consumers, storage companies, and other transmission companies.

Fig. 5. Turkey’s Natural Gas Infrastructure (IEA, 2005a).



Existing, planned and under construction parts of the national transmission grid remain under BOTAS ownership. Existing natural gas pipelines and related facilities are given in figure 5. They are as follows (BOTAS, 2004):

- Russian Federation-Turkey Natural Gas (NG) Main Transmission Line,
- Izmit-Karadeniz Ereğli NG Transmission Line,

<sup>42</sup> The phrase of ‘most appropriate network’ may create legal hurdles in the future. Who will decide which one is the most appropriate network? EMRA has the responsibility and authority disputes about networks. Yet, conflicts of interests may shift parties to legal competition, rather than market competition. What will happen if they think that they are intentionally connected to higher cost networks, as a result of discrimination?

Bursa-Çan NG Transmission Line,  
Çan-Çanakkale NG Transmission Line,  
Eastern Anatolia NG Main Transmission Line,  
Karacabey-Izmir NG Transmission Line,  
Samsun-Ankara NG Transmission Line,

#### *Distribution*

Distribution companies can sell natural gas to cities by purchasing it from BOTAS. BOTAS's existing monopoly in the market does not let distribution companies purchase the gas from competitive producers, wholesalers or importers, even though they have *de jure* right to do so according to NGML. Current conditions force other companies to import gas from countries that BOTAS does not import. Distribution companies can only serve at most two cities with a license, under the discretion of EMRA.

There are eleven distribution lines in Turkey. These are;

Bilecik-Kütahya-Uşak Distribution Line (Phase 1),  
İzmir/Kemalpaşa OSB- Pınarbaşı - Torbalı-Turgutlu Distribution Line (Phase 2),  
İzmir-Aliağa-Atatürk OSB Distribution Line (Phase 3),  
Kırıkkale-Kırşehir-Yozgat-Polatlı Distribution Line (Phase 4),  
Konya/Ereğli-Aksaray-Niğde Distribution Line (Phase 5),  
Konya-Karaman/Kazım Karabekir-Konya OSB Distribution Line (Phase 6),  
Manisa OSB-Akhisar-Balıkesir-Susurluk Distribution Line (Phase 7),  
Kayseri-Sivas Distribution Line (Phase 8),  
Çorum-Samsun Distribution Line (Phase 9),  
Adapazarı Earthquake Mass Housings Distribution Line (Phase 10) and  
Çorlu-Dericiler OSB Distribution Line.

Tendering process for these distribution lines was completed and the agreements were signed. Construction work on these distribution lines was completed and began to supply natural gas by the end of 2003 (BOTAS, 2004).

At present, eight cities use natural gas for both households and industry and 18 cities use it only for industry<sup>43</sup>. BOTAS projects to reach all cities by the end of 2008.<sup>44</sup>

#### Import and Export

Importer companies have the right to sell natural gas to wholesale market, free consumers, or exporters. Annual natural gas imported by each import company cannot exceed 20% of the national gas consumption projection of that year. Companies that

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<sup>43</sup> The figures were taken from [www.epdk.gov.tr](http://www.epdk.gov.tr), (13.02.2006).

<sup>44</sup> However, there are some doubts about these figures. It seems that BOTAS's predictions are overly optimistic and emphasis to the fact that subsidies and below-cost pricing would have to be cancelled gradually during the process of liberalization of the energy sector (Mazzanti and Biancardi, 2005: 210).

take an import license can perform wholesale activity without a wholesaler license. Export companies can export the gas produced in the country or transported from abroad to international markets by using transmission pipelines and obtaining an exporter license.

### *Wholesale*

Wholesalers must satisfy regulations on storage capacity, transportation conditions and origins of buying. Wholesale companies can sign gas sale contracts with distributors, importers, exporters, and free users on market prices. Wholesale companies must take an import license for gas imports. Wholesale and import companies must store 10% of the imported gas in 5 years later the license date.

### *Eligible Consumers*

Eligible consumers, who consume more than 1 mcm gas annually, have the right to choose their own gas suppliers. At present, the gas market opening rate is 80 percent (EMRA, 2004). This rate is on average 78 percent for EU countries (Mazzanti and Biancardi, 2005). In this sense, Turkey meets European Community averages. EMRA has the right to allow the amount of eligible consumers to increase.

Even though they have the right to purchase natural gas from national and international producers, storage facilities, importers and wholesale companies, current market structure forces them to deal with BOTAS. They can bid for the tenders to be issued by BOTAS. Only after the tenders are realized will new suppliers be allowed to enter the market, and consumers will have the opportunity to change their suppliers (EMRA, 2004).

### *Storage*

Private storage facilities can *de jure* take licenses and sell natural gas to distribution companies and eligible consumers. However, Turkey does not have *de facto* storage facilities. Three projects of underground natural gas storage, Northern Marmara, Degirmenkoy, and Salt Lake, have started recently. The Northern Marmara and Degirmenkoy projects, constructed by TPAO, will be in operation in 2006. The construction of the third one, the Salt Lake project, is in the planning phase.

## **4. Issues related to Regulation of the Market**

Although NGML is enacted and the market opens to competition legally, BOTAS's dominant role in the market has not diminished, which makes the transition more painful. This monopoly power has delayed competitive trading in the market. Besides, the absence of an independent transmission system, which is a precondition of competitive natural gas market in accordance with the 2003 EU Gas Directive, has stalled competition.

Although eligible consumers, around 80% of the market, have the right to choose their suppliers, this competitive application cannot be implemented because of the cross-subsidies and the monopolistic position of BOTAS in import and trade. Flat prices or third-part access tariffs charged by BOTAS and distribution companies in the distribution and transmission grant monopoly power to the companies in their own areas.

BOTAS's transfer of some of its contracts to private parties is a good sign. However, it is politically motivated and there is no assurance that BOTAS will not change the course on legal or political grounds. The delay on import contracts is a good indicator of the slippery ground. A controversy over the details of contracts brought the process to a standstill because of the delay in the contract transfers by BOTAS in the first year.

These delays signal potential problems in the market. For example, importers, which undertake BOTAS's responsibilities through the tendering process, may have disputes with suppliers on price differences. These risks may easily turn into uncertainties about the institutional structure of the market and create artificial entry barriers.

In this context, what will be the roles of BOTAS and the government in the regulatory reform process in the coming years? Previous governments signed some of the contracts but BOTAS is responsible for the contract transfer program, which refers to the transfer of some of BOTAS's contracts to other market participants until BOTAS's market share falls to the legally defined levels. It is a necessity for the government to define its role in the negotiations of contract transfers. As IEA would suggest, the government may need to accelerate the process by rapidly implementing volume transfer (IEA, 2005a).

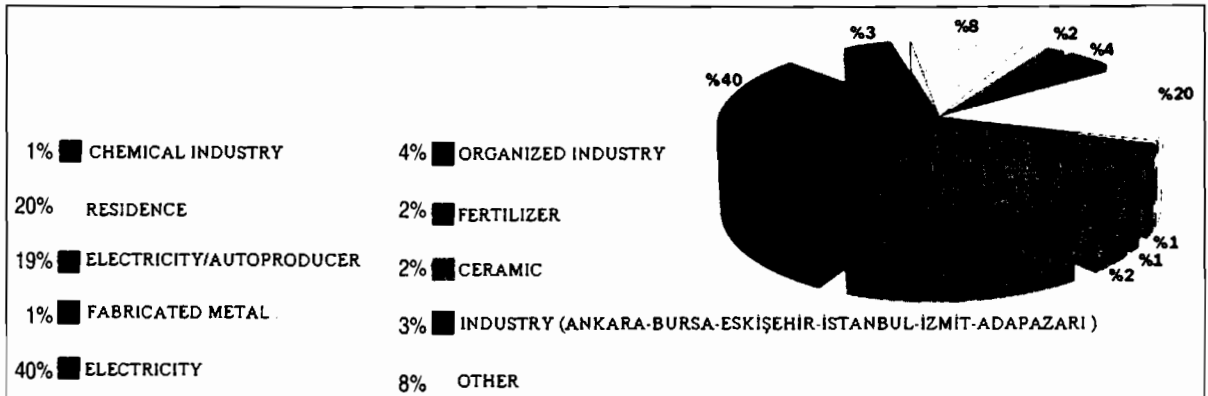
BOTAS's position in the market is also in conflict with the regulatory authority. EMRA has the authority and responsibility to set and monitor prices in the market. In reality, gas prices are determined by BOTAS through individual contracts. Apparently, EMRA does not have much control over these contracts in practice.<sup>45</sup> This situation limits the discretionary power and independence of the regulator on tariffs and increases the costs of transition to a more competitive market (Larsen et. al., 2005).

Another issue is the interdependence of natural gas and electricity markets. The success of natural gas restructuring bears upon the electricity market reforms in many ways. As seen in the figure 2, electricity generation from natural gas has reached 60% recently (Yılmaz ve Uslu, 2005). This dependency opens the door for more crises. The California electricity crisis is exemplary in this connection (Joskow and Kahn, 2002; Woo et al., forthcoming). In California, electric power generation depends on natural gas. At the time of the crisis, half of the electricity was produced with natural gas. During the crisis, there was a sharp increase in natural gas prices, which pushed electricity prices higher. While there are significant differences between Turkey and California in terms of political structure of the market, the dependence creates an 'unnecessary' risk for competition. Moreover, the Turkish electricity market is exposed to the irregularity in natural gas supply. As observed in early 2006, an interruption in gas supply is a real possibility. In such a case, the government would cut the gas of industrial users, co-generators and power plants. In the case of a more serious shortage, an electricity crisis is inevitable.

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<sup>45</sup> The natural gas market faces the same problem as the electricity market. Existing contracts limit the independence and authority of EMRA over the market (Cetin and Oguz, forthcoming). Since natural gas and electric power markets are organically related, the negative effects of these contracts afflict both markets regardless of their origin.

Fig. 6. Sectoral Sharing of Natural Gas Consumption in 2004 (BOTAS, [www.botas.gov.tr](http://www.botas.gov.tr))



Long-term take-or-pay supply contracts are another barrier before the liberalization of the market. BOTAS has just signed eight long-term gas purchase contracts. Such contracts can establish *competition for the market*, if they are granted through competitive bidding (Demsetz, 1968). However, they also create barriers to entry and economic inefficiency in the market. Because contracts have been signed without careful demand predictions (DPT, 2000), oversupply risk, barriers to entry and inefficiency will apparently give birth to further impediments to a competitive environment.

Table 2 and table 3 present natural gas demand estimates and contracts for the future. Because gas demand has increased less than expected, a risk of oversupply exists for the coming years. It is estimated that existing contracts will exceed demand over the next two to three years by 9 to 13 percent and reach 20 percent later in the decade (IEA, 2005a).

Table 2. Turkey's Estimated Natural Gas Demand and Export Rates (mcm) (BOTAS, [www.botas.gov.tr](http://www.botas.gov.tr)).

YEARS	2006	2007	2008	2009	2010	2015	2020
Turkey's Gas Demand	29.505	31.155	33.417	37.034	42.076	52.245	61.042
Gas Export	21	492	737	737	737	737	737
Total Gas Demand	29.526	31.647	34.154	37.771	42.813	52.982	61.779

Table 3. Contracted Supply Quantities (mcm) (BOTAS, [www.botas.gov.tr](http://www.botas.gov.tr)).

YEARS	2005	2006	2007	2008	2009	2010	2015	2020
Rus. Fed.	5000	6000	6000	6000	6000	6000	0	0
Algeria (LNG)	4444	4444	4444	4444	4444	4444	0	0
Nigeria (LNG)	1338	1338	1338	1338	1338	1338	1338	1338
Iran	6689	8600	9556	9556	9556	9556	9556	9556
Rus. Fed. (West)	8000	8000	8000	8000	8000	8000	8000	8000
Rus. Fed. (Black Sea)	6000	8000	10000	12000	14000	16000	16000	16000
Turkmenistan (*)	0	0	0	0	0	0	0	0
Azerbaijan (**)	0	0	2000	3000	5000	6600	6600	6600
Total Gas Supply	30938	35766	40638	43587	47519	51058	40791	40791

(\*) : Natural gas purchase keeps uncertainty.

(\*\*): Annual contract amounts will able to be changed according to beginning date of gas deliveries.

The new contract with Egypt, made by the Ministry and transferred to BOTAS, has given the signal of the controversy over the authority in the market. It also gives the signal that the government does not take NGML seriously. MENR sees the Egypt contract as an important step toward supply diversity. However, EMRA does not see a supply shortage to enter into new contracts.<sup>46</sup> According to NGML, EMRA board has the right and authority to decide on these contracts.<sup>47</sup> Even if EMRA and MENR reach an agreement, BOTAS cannot be part of the contract. NGML limits the market share of any importer or wholesaler to 20 percent of the domestic market. This also applies to BOTAS, which cannot make new purchase contracts until its share of imports falls to the required level. The earliest possible date for BOTAS's share to fall the legally required level is 2009. In sum, as in the case of electricity, the government does not want to leave energy policy to a regulatory agency and reduces the role of EMRA over the natural gas market to a bureaucratic arm of the government. The government signals that it has command over the market.

Lastly, although Turkey is a *natural* energy corridor between Europe and Asia, it has not sufficient underground storage capacity that would store more gas than it consumes to realize its aim to be the Eurasia corridor. This deficiency constrains Turkey both in terms of efficiency of its energy policies related to natural gas and in terms of development of competition in the internal natural gas market.

## 5. Summary

In this paper, we have tried to offer a glimpse of the restructuring efforts and surrounding issues in the Turkish natural gas market. Problems that plague the electricity market also impair the natural gas market. The legal reform and the regulatory agency could not establish a market structure that reinforces and promote a 'liberal' market.

Turkey's multidirectional dependency in energy has prevented efficiency considerations to take the lead in energy policies. It has not been able to diversify its natural gas supply sufficiently to minimize the effects of an external shock. It also lacks necessary storage facilities. In the event of a probable economic or political instability in the region, the dependency on Russia in natural gas can trigger an energy crisis in Turkey. While these issues at first may seem to be transitory, conflicts between the government and the regulatory authority increases the costs of transition to a competitive market.

Electric power plants use natural gas to a great extent. Instability in the natural gas sector may trigger a probable crisis in the electricity industry until Turkey achieves the primary source diversity in electricity generation. It is clear that Turkey should ascertain the resource diversity. The conflict between MENR and EMRA on the diversity issue raises two separate issues. While EMRA may not want new contracts because of the law, diversity is a necessity. The action of the ministry is wrong in

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<sup>46</sup> EMRA's President Yusuf Gunay's speech. <http://www.epdk.gov.tr/basin/2006konusma/2006-04-21-antalya.html> (as of 22.05.2006).

<sup>47</sup> NGML temporary article 2. Export only contracts can be made without EMRA's permission. However, the Egypt contract aims to import 4 bcm gas to Turkey. BOTAS cannot enter into this contract without first obtaining EMRA's decision. The government went around the regulatory authority in this case.



principle. It bypasses the law, instead of amending it. We believe that any political intervention to avoid the law creates more problems than it solves.

Another significant problem during the reform of natural gas market is BOTAS's monopolistic structure. BOTAS's ongoing monopoly structure over the natural gas market, such as its share in imports, long-term purchase contracts, and property of transmission grids, have increased transactions costs of transition to a competitive regulatory setting. It is also *de facto* necessary to reduce BOTAS's dominant role in the market in order to institutionalize competition successfully.

More importantly, the political issues that surround the market have to be seen as part of the restructuring effort rather than external shocks. A separation of technical, economic and political issues may limit the ability to see the interrelations between the institutional structure and market participants. In sum, the efforts to reform the industry remain sluggish. The opportunities to build a competitive market are still there to be exploited, even though their costs are rising.

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