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Ole Gunnar Austvik and Gülmira Rzayeva:

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Summary

This paper outlines the role of Turkey as an increasingly more important natural gas consuming country while at the same time strategically located as a transit country between major consuming areas in the EU and suppliers in the Middle East, Central Asia and Russia. Turkey's ability to import additional volumes of gas to meet the growing demand as well as to renew the contracts after their expiration in the 2020s is fraught with daily send out capacity constraints of the BOTAŞ system entry points and legal limitations in its Natural Gas Market Law. The long-term contracts with all its current pipeline gas suppliers - Russia, Azerbaijan and Iran - expire in the 2020s. Contract renewals could be beneficial for all parties, but price uncertainty and concerns with the ongoing Turkish market liberalization, new gas suppliers, LNG and political developments make the import picture more open. As a transit country Turkey may transport additional volumes of natural gas from Iran and other Middle East countries (especially Iraq), from the next wave of production in Azerbaijan, or from new gas production in the Eastern Mediterranean (Israel/Cyprus) to Europe in the TANAP pipeline operational from 2018. Commercial and financial, infrastructural, and political situations and relations constrain this potential. A realization of TurkStream might increase dependence on Russian gas but also minimize risks of interruptions in gas flows through Ukraine. The largest potential for an increased role for Turkey as an east-west transit country is when the entire domestic market continues to grow, and legal and infrastructural constraints resolved.

Keywords: Turkey, Natural Gas, Southern Gas Corridor (SGC), Azerbaijan, BOTAŞ

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Introduction

With a rapidly growing economy and a population of 80 million people, Turkey has been one of the fastest growing energy consumers in the world. The country was only bypassed by China in natural gas and electricity demand growth over the past decade. It must import some 3/4 of its total energy needs and almost all of its oil and gas.[1] Located strategically between two continents, Turkey is also an important oil and gas transit destination, decisive to its own import dependence as well as to regional energy security. Currently, Azerbaijani and Kurdish oil is transmitted across the Eastern part of the country to Ceyhan by the Mediterranean Sea. In 2018, natural gas will be transmitted from Azerbaijan to the Greek border through the 3,500 km East-West natural gas pipeline project, of which 2000 km is on Turkish territory, referred to as the "Southern Gas Corridor" (SGC). The SGC can make Turkey a significant international and regional gas transit country and physical hub between producers in the Middle East, Central Asia and Mediterranean on the one side, and the European Union (EU) on the other.

Turkey's priority to secure energy for its own market coincides with the aim of becoming an international physical hub and transit corridor for natural gas, and determines its geopolitical role in the natural gas market.[2] The development of and heavy investments in SGC capacity depend a lot on domestic Turkish demand "on the way". The difficult domestic political situation creates uncertainty about how decisions will be made for energy demand as well as for energy transit. The great political risks it faces in its neighborhood may also prevent it from launching new pipeline projects and exploiting supply options. In this paper, we study gas demand developments in Turkey to highlight its role as an energy consumer as well as its potential as a transit country for natural gas. First, we outline the drivers of demand growth from a long-term perspective. Second, the expiration of the long-term contracts (LTCs) with Azerbaijan, Iran and Russia that expire in the 2020s and their possible renewal is reviewed. Third, domestic market liberalization efforts and impacts on future gas demand and transit growth are outlined. Fourth, the possibilities for Turkey to purchase gas from new sources such as Iraq, Israel/Cyprus, and Turkmenistan, as LNG, or through pipelines as well as TurkStream from Russia, are

[1]Turkey has some domestic coal and hydro resources for electricity production. Around 2/3 of these resources are located in the Eastern part, while most demand is in the more populated Western part of the country (TMFA 2016). For the future, there may be significant shale oil and gas reserves under the Aegean Sea, the Black Sea and in the Dadas shale in the southeast of Turkey in Diyabakir Province (EIA 2015).

[2]Geopolitics is often defined as the studies of the way geographical (and often also historical and social) factors help explain the power and role in international affairs of nation states. In classical formulations, the links and causal relationships between political power and physical power over geographic space were emphasized (Mackinder 1904). In the economic and political integrated world of today, the term seeks to understand how control over territory influences political power and political and economic outcomes through factors, mechanisms and institutions in the international economic and political system (Agnew & Corbridge 1989). Hence, the geopolitics of energy of any region is to be understood not only in volume terms. The size and location of other energy resources, how available they are, who controls them, their cost, alternative transportation routes, how regional and global energy markets balance, market mechanisms and regulations, political decisions, and energy prices in general, are also important.

discussed. Fifth and finally, we assess Turkey's potential as a future consumer and transit hub for natural gas.

1 Turkey's Natural Gas Demand

The most important fuel in Turkey's energy mix is natural gas. Its share of total energy demand is around 35 percent. Natural gas is also one of the most important strategic industrial segments due to its direct and indirect impact on economic development, growth and imports. The energy sector and the energy intensive industries remain under government control and/or regulation.[3] According to estimates from state-owned BOTAŞ (Boru Hatlarıile Petrol Taşıma A.Ş. BOTAŞ), demand for natural gas is projected to increase on average by 2.3 percent/year from 2014 till 2030 implying that demand will grow from some 48 billion cubic meters (BCM) in 2015 to 70 BCM by 2030, down from 80 BCM estimated by BOTAŞ in 2012 (Rzayeva 2014). This is driven mainly by industrial consumption, but also by domestic and commercial sectors, as well as by gas-fired electricity generation. In 2012, BOTAŞ itself predicted that the share of gas in the electricity sector would reach 45 BCM/year by 2030.

Currently, Turkey imports gas from Azerbaijan, Russia and Iran by pipeline, and LNG from the world market (Figure 1). The Baku-Tbilisi-Erzurum Natural Gas Pipeline (690 km) became operational in 2007 following an intergovernmental agreement between Turkey and Azerbaijan, and between BOTAŞ and SOCAR (the State Oil Company of Azerbaijan) to transport 6.6 BCM of Shah Deniz Phase-I gas to Turkey. The SD consortium pays Georgia the transit fee for transportation of gas through Georgian territory to Turkey, in the form of delivered gas. Apart from the contracted volume of 0.3 BCM/year, the gas delivered to Georgia as the transit fee (5% of total transit volume) depends on the gas volume transported through the SCP for Turkey (Rzayeva 2015). The Turkey-Greece Interconnector (300 km), developed under the EU's INOGATE program (Interstate Oil and Gas Transport to Europe), became operational also in 2007, and a smaller amount of Azerbaijani gas was delivered to Europe for

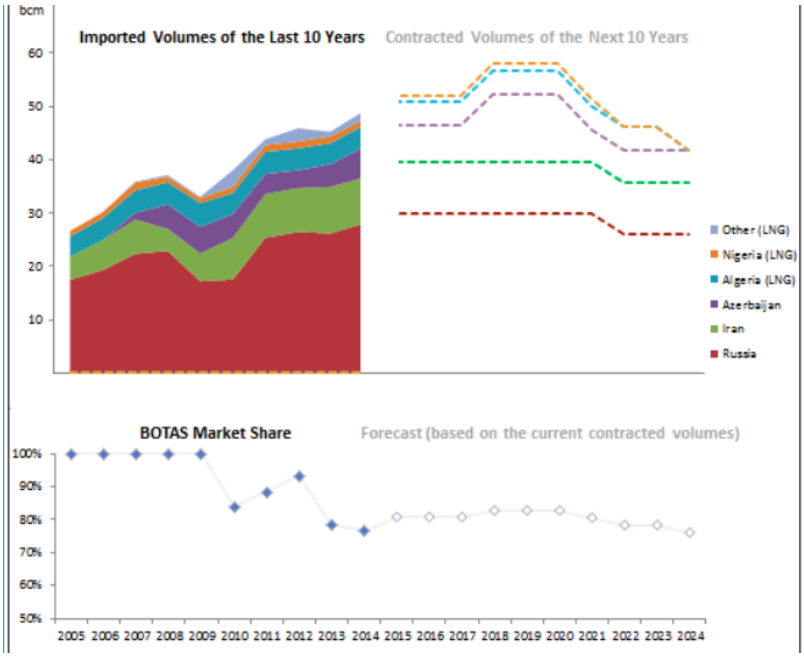
[3] "Türkiye Petrolleri (TP) is the dominant oil exploration and production entity in Turkey. As a state-owned firm, TP has preferential rights in petroleum exploration and production, and any foreign involvement in upstream activities is limited to joint ventures with TP.

State-owned Petroleum Pipeline Corporation (BOTAŞ) dominates the natural gas sector, although most of the market is open to competition. BOTAŞ is vertically integrated across much of the natural gas sector. BOTAŞ accounts for about 80% of natural gas imports; it builds and operates natural gas pipelines in Turkey; it accounts for most of the wholesale market; and it accounts for most exports of natural gas.

State-owned and vertically integrated Turkish Electricity Authority controlled generation, transmission, and distribution of electricity in Turkey prior to the electric sector reforms that began in the 1980s. Since then, the government has passed several laws which have unbundled and partially privatized the Turkish electric sector."
State-owned Electricity Generation Company (EUAS) remains the largest electric generation company controlling about 40% of all generation capacity. "The remaining generation comes from independent power producers and firms given special state concessions to build and operate power plants.
The wholesale electricity market in Turkey is also open to private companies although the state-owned Turkish Electricity Trading and Contracting Company (TETAS) dominate it. Transmission and distribution services are separate (unbundled) from generation and marketing services. The Turkish Electricity Transmission Company, a state-owned enterprise, owns and operates the transmission system. There are 21 electric distribution regions in Turkey, most of which are operated by private companies." Source/quotes: (EIA 2015).

the first time. Imports from Russia started in Soviet times. A Western routed (Trans-Balkan) pipeline (845 km) transits Ukraine, Romania and Bulgaria and passes through the Turkish towns of Hamitabat, Ambarlı, Istanbul, Izmit, Bursa and Eskisehir before reaching Ankara. Gas imports started in 1987 and have now a capacity of 14 BCM/year after expansion. Russian gas supplies via Blue Stream pipeline (1213 km of which 396 km lies through the Black Sea) started in 2003 with 16 BCM/year contracted volume. Iran started its gas export to Turkey in 2001 with a pipeline capacity of 11 BCM/year.

Figure 1: Turkey's gas import outlook, 2015



Source: Okan Yardimci, Energy Expert, Energy Market Regulatory Authority (EMRA) of Turkey

The Turkish government has an objective of reducing the share of gas in the electricity generation sector, replacing it with domestically produced lignite coal, renewable energy and nuclear. This policy has been driven by high oil prices and expensive contracts for gas imported from Russia and Iran persisting from 2008 to mid-2014.[4] A decline in consumption of gas in the electricity sector is encouraged by the expiration of BOTAŞ contracts to supply gas-fired power stations between 2018 and 2020, which are most likely to be replaced by private companies generating electricity from coal and renewable sources. The share of natural gas in power generation declined from 48 percent in 2014 to 39.8 percent in 2015. However, the current gas price in Turkey is averaging around US$ 150-160/thousand cubic meter[5] which is around $ 5.2/MMBtu, making natural gas preferable to petroleum products and low quality

[4]All Turkish long-term contracts are linked to end-user oil product prices with a lag of 6 to 9 months. See Austvik (1997:1001-1003) for an overview of how natural gas prices have been set in European LTC.
[5] This is the average price of piped gas only, which includes Russian, Azerbaijani and Iranian gas (and excluding LNG).

locally mined coal (low calorific value) in all non-transportation energy uses[6]. The low prices give less incentive to reduce the share of gas in the electricity sector. Although gas for electricity is declining, residential gas demand is growing. The number of households connected to natural gas grids is close to 13 million, which means that approximately 40 million people have such access. Based on the expansion and growth in the residential and service sectors, each year 1 million new users hook up to natural gas in Turkish cities. A similar growth rate was observed in the industrial sector, with consumption reaching 13.4 BCM in 2015. Taken together, we expect gas demand in Turkey to continue to grow over the next two decades modestly but steadily, driven mainly by the residential and industrial sectors, dependent on the price of imported gas.

The demand projections have led to concerns in the Turkish government on how to find 20 BCM/year of additional gas volumes over the next two decades, from current or new suppliers. Ankara's main strategy is to import gas from multiple sources, to reduce dependency on any one supplier. This policy is driven mainly by considerations of avoiding single suppliers' market power as well as actual or potential deteriorations in bilateral relations with the supplying countries. The overall goal is to reduce energy supply sensitivity and vulnerability (Austvik 2016:375). Turkey's long-term sales and purchase contracts with the three existing land based gas suppliers, i.e. Azerbaijan through the Baku-Tbilisi-Erzurum line, Russia through the Blue Stream and Trans-Balkan lines and Iran through the Tabriz-Dogubayazit route (see Map 1), will expire in the 2020s. This affects some 40 BCM/year, or 80% of current gas demand.[7] Extension of these contracts depends both on commercial and political issues, as Turkey has either political or pricing controversies with both Russia and Iran. Relations with Russia have been strained following the downing of a Russian jet in the spring of 2016, but seem to be recovering after the meeting of Presidents Putin and Erdoğan in St. Petersburg on August 9, 2016. Domestic infrastructure is not sufficiently developed to handle the average 1.5 BCM/year demand growth anticipated over the next few years. Import of LNG could mitigate the problem for a while, but the limited capacity of regasification terminals, and the BOTAŞ storage and transmission system, especially during peak winter seasons, remain constraints.

The Turkish government is keen to increase the *LNG* regasification capacity of the Egegas and Marmara Ereglesi terminals (current total regasification capacity of both terminals is 12.2 BCM/year) and is negotiating with Qatar for LNG terminal expansion investments. It is also considering using floating storage and regasification units (FSRU), which would be the fastest capacity increase option. Floating terminals could create mobility and deliver LNG in a flexible manner. However, increasing Turkey's LNG regasification capacity is not a practical solution to the diversification of supply sources

[6] As a frame of reference, gas prices in August 2016 were in JKM (Japan Korea Market) hub around $ 6/MMBtu, in HH (Henry Hub) of the U.S. around $ 2.25/MMBtu and the forward price in NBP (National Balancing Point, UK) around $ 4.5 MMBtu (Source: www.platts.com).

[7]The rest comes to the Marmara Ereglesi and Aliaga liquefied natural gas (LNG) terminals in the Western part of the country, which receives gas from the international LNG market, mostly from Nigeria and Algeria as well as direct imports from Gazprom by private companies.

and increase of import volumes. The main technical problem, the transfer capacity of BOTAŞ, remains a main impediment to increasing gas volume imports to the country. Theoretically, each LNG terminal can feed around 20 million cubic meter (mcm)/day into the system (20 x 2 = 40 mcm maximum from two LNG terminals). The LNG terminals have been shown to be working at near 100 percent capacity between November 1 2015 and February. Another problem with LNG is BOTAŞ and government pricing policy. Only BOTAŞ and Egegas are importing LNG due to the pricing strategy of BOTAŞ, which sells gas to the domestic market at heavily subsidized prices. BOTAŞ has to subsidize domestic gas prices especially from Iran (whose prices are the highest). The government of Turkey reimburses BOTAŞ through subsidies (Rzayeva 2014).

2 Domestic Gas Market Liberalization[8]

Turkey began liberalizing its natural gas market in 2001 with the Natural Gas Market Law (NGML). A major issue was the unbundling of BOTAŞ into separate legal entities for transportation, LNG terminals, storage, trading and marketing. The NGML set forth various restrictions on BOTAŞ's gas purchases, with the aim of decreasing BOTAŞ's market share and establishing a more competitive market. Under the NGML, the amount of gas imported by any company cannot exceed 20 percent of expected national consumption, as determined annually by Turkey's Energy Market Regulatory Authority (EMRA). BOTAŞ is not exempt from this limitation and, under Provisional Article 2 of the NGML; BOTAŞ cannot enter into new natural gas purchase contracts until the volume of gas it imports falls to 20 percent of total annual national consumption. According to the NGML, BOTAŞ is prevented from renewing the contracts with its current suppliers as well as from entering into any new natural gas purchase contracts. However, there are two exceptions to these restrictions:

- The restrictions under Article 2 do not apply to the import of gas in the form of LNG.
- While Article 2 imposes restrictions on BOTAŞ signing new contracts, it does not prohibit BOTAŞ from amending its existing contracts. When amending a contract, terms and conditions can be changed, as opposed to renewing and prolonging an existing contract on the same terms and conditions.

If a company wants to sell gas to BOTAŞ, it can do so either in the form of LNG or through BOTAŞ's existing contracts by amending their terms. Article 2 also places a restriction on gas imports by companies other than BOTAŞ. It states that no new gas purchase contracts can be signed with countries from which BOTAŞ is already importing gas until BOTAŞ's existing contracts with these countries expire. As BOTAŞ currently imports gas from Nigeria, Algeria, Iran, Russia and Azerbaijan, a private company will not be allowed to import gas from these countries until the expiration of BOTAŞ's existing contracts. There are, nevertheless, certain exceptions to this restriction:

[8] Source of this section: Okan Demirkan, partner of KDK Attorneys at Law, Istanbul

- EMRA may grant import licenses if the gas is exported to other countries.
- If EMRA identifies a deficiency in domestic natural gas supply, it may grant import licenses to private legal entities for connections from these countries.
- Tenders can be put forward for taking over BOTAŞ's existing gas purchase contracts.[9]

Notwithstanding the above, the NGML does not directly restrict private companies from importing gas from countries with which BOTAŞ does not have an existing contract. However, the question of whether private companies and BOTAŞ will be able to import additional volumes of gas from new sources remains. The case of the BOTAŞ contract with the Azerbaijan Gas Supply Company (AGSC) to import gas from SD2, despite the existing contract with SD1, shows that the Turkish government is able to create an exception if this import can contribute to the energy security of the country. An Intergovernmental Agreement (IGA) between Azerbaijan and Turkey was signed to make an exception to the NGML. The IGA represents a law that can prevail over the NGML.

3 The Extension of Long Term Contracts

Turkish contracts that expire in the 2020s are:

1) 6 BCM/year of gas imported from Azerbaijan's Shah Deniz phase 1 (SD1) expiring in April 2021 (concluded in March 2001, became operational in 2007);

2) private contracts with Gazprom to import 4 BCM/year through the Western pipeline, expiring in 2021;

3) a LTC with Algeria to import 4.4 BCM/year of LNG ending in 2021;

4) a contract between BOTAŞ and Gazprom to import 16 BCM/year through the Blue Stream pipeline that expires in 2025; and;

5) a LTC between BOTAŞ and Iran to import 9.6 BCM/year that expires in 2026.

In total, these contracts represent almost 40 BCM/year of gas supply that will expire by 2026 (Table 1, Figure 1).[10]

[9]"There has been progress in BOTAŞ selling off its import contracts: BOTAŞ has transferred 10 BCM of import contracts, equal to about 20% of Turkish natural gas consumption, to seven private companies." Russia's state-owned natural gas company, Gazprom, has a 71% stake in Bosporus Gaz (which holds import contracts for 0.75 BCM/year and 1.75 BCM/year; about 5% of Turkish consumption), and Gazprom has filed an application with Turkey's antimonopoly regulator to buy a controlling interest in Akfel Gaz (contracts for 2.25 BCM; about 4.5% of Turkish gas consumption). Source: EIA 2015.

[10]Capacity in the BOTAŞ gas transmission system is around 197 mcm/day (including all pipelines, LNG terminals and storage), yet the peak daily demand on the grid was around 240 mcm/day in 2015, and in winter 2016/2017 is likely to be around 250 mcm/day. The major problem for BOTAŞ is the limited capacity of all its import entry points. Turkey imports around 90 mcm/day from the north-west via the Blue Stream and Western lines. If gas northwest flows stops, partly or entirely, this amount cannot be replaced with another option on the south or east entry point. This is anticipated to be solved with the completion of TANAP in 2018. This scalable pipeline will

Table 1: Natural Gas Purchase Contracts.

Agreements	Volumes (During the Plateau Period) (BCM/y)	Date of signature	Duration (years)	Date effective	Expiry Date	Status
Algeria (LNG)	4	14 April 1988	20	1994	Oct 2024	In operation. Has been renewed for next 10 years by BOTAŞ
Nigeria (LNG)	1.2	9 November 1995	22	1999	Oct 2021	In operation
Iran	10	8 August 1996	25	2001	Jul 2026	In operation
Russian Fed. (Blue Stream)	16	15 December 1997	25	2003	End of 2025	In operation
Russian Fed. (Western Line)	8	18 February 1998	23	1998	End of 2021	In operation
Turkmenistan	16	21 May 1999	30	-	-	-
Azerbaijan (SD Phase-I)	6.6	12 March 2001	15	2007	Apr 2021	In operation
Azerbaijan (SD Phase-II)	6	25 October 2011	15	2018	2032/2033	-
Azerbaijan	0.15	2011	35	2011	2046	In operation

Source: BOTAŞ

There is no doubt that Turkey and its gas suppliers are all interested in the extension of the sales and purchase agreements after their expiry dates, for a number of reasons. Turkey is deeply concerned to be able to provide a secure supply of natural gas given a possible supply squeeze that could occur in five years when 15 BCM/year of gas contracts will expire. Turkey's supply sources of contracted natural gas are not sufficient and the country has to meet any, even small, demand growth and seasonal fluctuations with the help of spot LNG.

Russia. In light of these realities, Turkey cannot afford to lose any imported volumes of Russian gas, whatever the political situation seems to dictate. Since 2011, private companies in Turkey have directly imported 10 BCM/year from Gazprom through the Western Line pipeline. Piped gas otherwise comes across the Black Sea through Blue Stream from Novorossiysk to Samsun. After the cancellation of South Stream, some ideas have put forward to build a Turkish Stream directly to the Istanbul area (See Map

potentially, transport 31 BCM/year to the Turkish market, with two exit points at Eskisehir and on the Turkey-Greece border.

1). Russian gas import by private companies via the Western Line constitutes 22 percent of the total market, partly resulting from liberalization of the natural gas market in line with Article 2 of the NGML on import contract releases. However, the extension of 4 BCM/year of private Turkish companies with Gazprom is fraught with pricing difficulties. Private companies must buy this gas from Gazprom for the lower price than BOTAŞ, which benefits from subsidization of gas prices to households, industrial and electricity generation. Private companies do not get this subsidy and must therefore sell in the domestic market at a loss, if the imported gas price is not lower that the BOTAŞ imported price. Gazprom is the only company that sells gas to others than BOTAŞ at a lower price. Gas export companies may want to sell these volumes to monopolist BOTAŞ for a better price. As a response, Gazprom may decline to renew the existing contract and require getting the price difference between BOTAŞ and private companies. However, given the fact that Gazprom has a direct or indirect interest in the form of shares in some of the private companies, it may be in the Russian monopoly's interest to continue this practice.

For Russia and Gazprom, Turkey is the second biggest market after Germany, with a yearly export of 27 BCM, which represents a 55 percent share of the Turkish market. In the current low price environment, Gazprom faces enormous financial losses. Moreover, it has lost one of its biggest markets, Ukraine, to which it will export only 4 BCM in 2016, in comparison with around 15 BCM in 2014 (Gazprom 2016). Gazprom has also lost huge market share in the Russian market, where its sales reduced by 83 BCM/year between 2011 and 2015. This is because independent suppliers in Russia have started to supply base demand (Henderson & Mitrova 2015) leaving Gazprom to meet the seasonal peak demand in the cold months, which is fraught with additional expenses for Gazprom. Turkey, meanwhile, has no binding agreements for alternative short- and mid-term sources of supply to replace Russian gas, with the exception of a 15-year contract to import 6 BCM/year of gas from SD2 through TANAP. It is, however, most likely that this volume will only replace the 6.6 BCM/year of gas from Phase 1 of the Shah Deniz field. In light of these realities, both Russia and Turkey will be keen to renew contracts.

Azerbaijan is Turkey's only gas supplier that has not been subject to a serious price conflict with BOTAŞ or to other political or geopolitical tensions. Given the cultural, ethnic and historic ties between the two nations, they are cooperating to realize the US$ 40 billion Southern Gas Corridor project. The most important segment of the value chain, the $ 9.5 billion Trans-Anatolian gas pipeline (TANAP) passing through Turkish territory, will deliver 6 BCM/year to the Turkish domestic market beginning in 2018. Given the fact that the SD1 field started producing in late 2006 and reached its plateau level in 2010, the field's geological tail-off period should begin in 2025-2027. During the tail-off period, production levels may decrease to around 2 BCM/year or more, depending well productivity. There may not be enough gas to renew the SD1 contract for a longer term. The 15-year sales and purchase contract signed between the SD consortium and BOTAŞ to import 6 BCM/year of SD Phase 2 gas could simply replace the SD1 6.6 BCM/year, rather than being an additional volume. Another scenario is that

the remaining volume from SD1 could be added on top of the contracted 6 BCM/year of SD2 gas. Realization of this scenario will strongly depend on whether both seller and buyer would be interested financially and legally in the exchange of SD1 volumes under the SD2 contract.

The *Iranian* contract expires in 2026. Iran is the owner of the world's largest proven gas reserves, holding 37 TCM of gas, but historically the country has not been able to fully benefit from its huge potential and become a major player in the global gas trade. Most important reasons are U.S. and other international sanctions and an unfavorable legal and contractual investment regime within Iran. In addition, its rapidly growing domestic demand, which has surged because of, among other factors, government subsidies, is important. Turkey is currently the only Iranian export destination, with a contract for 9.8 BCM/year. The price for Iranian gas to Turkey is the highest that BOTAŞ pays for pipeline gas, much higher than average European gas price. Iran would not easily be able to develop an alternative outlet for its gas, and has already invested heavily in pipelines. Iran currently has four operating contracts with its neighboring countries, four concluded but not yet operational, and four under negotiation. Turkey does not have any choice other than to renew its sales and purchase contract with Iran upon expiry. Gas and other relations between the two countries have always been complicated and encountered many problems. Delivery shortfalls during the peak seasonal demand in Iran has been one issue, but also BOTAŞ's inability to take all contracted volumes due to transmission system capacity constraints in the eastern part of the country and temporary reductions in demand during the low demand seasons is important. Turkey has sought a 30 percent price reduction, a removal of the 'take or pay' clause in contracts signed in 1996, and operational in 2001. It has taken the case to arbitration twice. In both cases, Turkey won, receiving $ 800 million (Hürriyet Daily News 2.2.2016) and $ 1 billion (Hürriyet 27.7.2009) (because of recovering 13-15.8 per cent price reductions) in compensation, respectively.

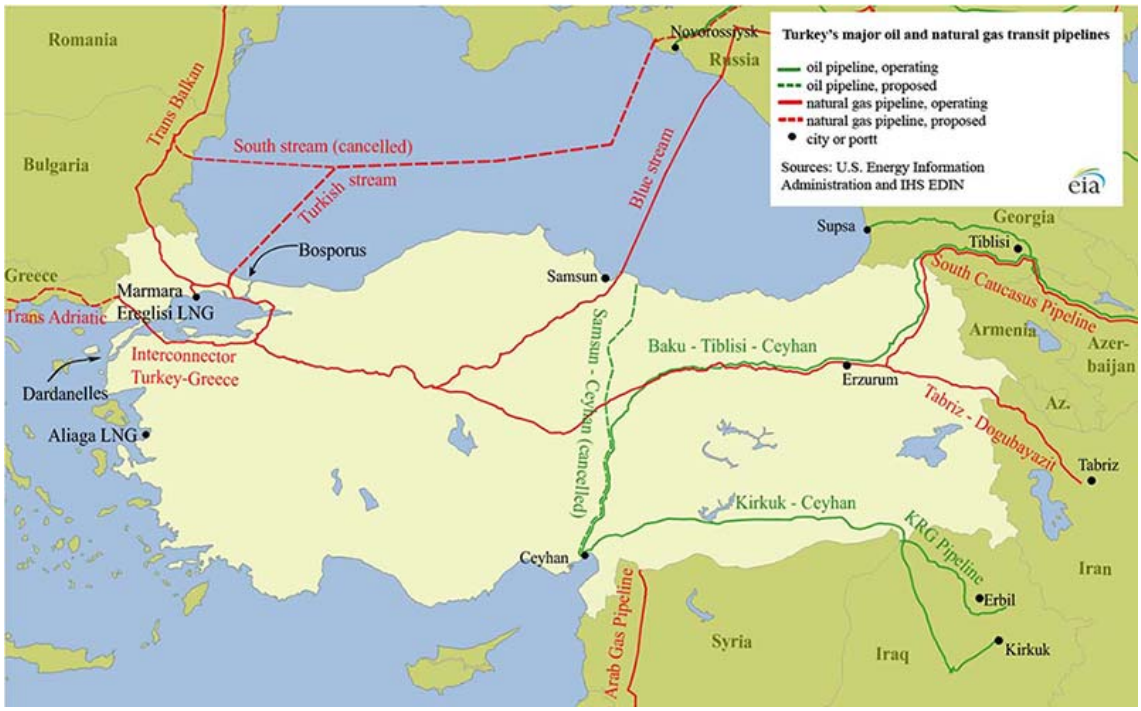
4 Turkey as a Transit Country

Turkey's strategic geographic position between 47% of world energy resources in Russia, Central Asia and the Middle East and 17% of global natural gas consumption in Europe (BP 2015) makes the country important from both a political and economic point of view. The Baku-Tbilisi-Ceyhan (BTC) and the Kirkuk-Ceyhan oil pipelines[11] are currently transporting oil across the Eastern part of the country to the Ceyhan oil terminal on Turkey's Mediterranean coast. The Turkish Straits of the Bosporus and

[11]The Iraq - Turkey Crude Oil Pipeline system consists of two parallel 986 km-long pipelines build in 1973 and 1987. These are transporting Iraqi crude oil to the Ceyhan (Yumurtalık) Marine Terminal with a total annual capacity of 70.9 Million tons/year as of 1987.The BTC was constructed to transport mainly Azerbaijani, and some Turkmen and Kazakh crude oil, from Baku to Ceyhan Terminal via Georgia completed in 2006. Total length of the pipeline is 1.769 km of which 1.076 km is within the Turkish territories and a capacity around 50 Million tons annually (1+ mbd). Source: TMFA 2016.

Dardanelles[12] waterways are used for oil transportation from the Black Sea ports of Novorossiysk in Russia and Supsa in Georgia to Western markets. Equally important in the future are the East-West natural gas pipeline projects in the SGC. Turkey's priority to secure natural gas for its own market coincides with the aim of becoming a hub and transit corridor. Up to 100 BCM/year can potentially be transported across Turkey to Europe in the long run (Rzayeva 2014), once the large-scale investments in infrastructure have taken place, including new LNG facilities and the expansion of storage capacities. In addition to existing sources, Turkey has had negotiations with Qatar about LNG imports. Turkey also has a Heads of Agreements from 1999 to import 16 BCM/year of gas from Turkmenistan, which has not been fulfilled until date. It has been fraught with disputes over the safety of the Caspian Sea flora and fauna, and strong opposition from Russia and Iran to build a Trans-Caspian pipeline.

Map 1: Existing and planned natural gas pipelines in Turkey



Source: U.S. Energy Information Administration (EIA) and IHS EDIN

[12]The Turkish Straits is one of the world's busiest chokepoints. In 2014, the amount of oil and oil derivatives transported through Bosporus was 125 million tons (TMFA 2016). However, a maritime accident in the narrow straits would involve great humanitarian, environmental and economic risk. The straits has therefore a limited potential for increased energy transit. Alternative land based solutions between the Black Sea and the Mediterranean have been considered to bypass the straits, such as the Samsun-Ceyhan pipeline in the East of Turkey and a line between Burgas in Bulgaria and Alexandropoulos in Greece. Also liquefied natural gas (LNG) could be transported through the straits, but Turkish authorities have indicated that they would not allow LNG vessels to transit for safety reasons (EIA 2015).

Binding agreements are in place to transit Azerbaijani gas from the SD2[13] field to Greek, Bulgarian and Italian markets. The gas will flow through the South Caucasus Pipeline (SCP), Trans-Adriatic Pipeline (TAP) and the Greece-Bulgaria Interconnector (IGB), which are being expanded and contracted. The TANAP line[14] across Turkey between the Turkish-Georgian border and the Marmara Sea, and the TAP are new projects within the context of the SGC. The supply of gas to Turkey will start in mid-2018 and to Europe in 2020. TANAP will play a crucial role for Turkey both in covering its own demand and in becoming a transit hub.[15] The capacity of TANAP will be 31 BCM/year, which can be extended in three stages. Azerbaijan may have unallocated gas above SD1 and SD2 volumes by the 2020s and 2030s and potentially produce additional 15 BCM/year from just 3 fields – Absheron, Umid/Babek, and Azeri-Chirag-Guneshli deep layer gas (Rzayeva 2015), plus a possible extra 15 BCM/year if SD3 is implemented. Total, the Absheron field operator, plans to start production in 2022 and reach a plateau level of 5 BCM/year. There are three potential markets for this gas: the domestic Azerbaijani, the Turkish and the European market. A main issue will be whether the SCP will increase its capacity, as currently all is booked for SD1 and SD2 and whether there will be a favorable pricing environment and marketing arrangement. Future potential supplies to the SGC also include some countries in the Middle East, Central Asia and Eastern Mediterranean.

First, *Iran* with the biggest gas reserves in the world could become a substantial global gas exporter now that sanctions have been lifted. Iran has an enormous potential, both offshore and onshore. The main priority of the Rouhani government has been to develop the remaining 14 phases of the giant South Pars offshore field in the Persian Gulf, which is expected to add approximately 172 BCM/year of natural gas to the current approximately 210 BCM/year. The timeframe of the current 12 phases and other onshore fields will strongly depend on Iran's ability to attract multibillion dollars of foreign investment in the upstream and midstream industry, as well as to create a favorable legal and contractual framework. Despite the low-cost environment in Iran, it may take several years before the country is able to deliver. Most produced gas will be consumed domestically due to rampant demand growth leaving little excess for export. Iran will have to choose whether to increase injection into aging oilfields in order to produce more oil and petrochemical products and thus restore its market share, mainly in Europe and elsewhere; or export either power generated from gas or more gas. However, the maximum capacity in the Iran Gas Trunk line I (IGAT1) that exports gas to Turkey is 11-16 BCM/year depending on compressor stations, of which currently 11 BCM/year is used, which leaves little space for additional volumes (Rzayeva 2016). Iran has signed a Memoranda of Understanding and sales and purchase agreements on gas exports with different neighboring countries. For Iranian gas exports in

[13]Shareholders in the Shah Deniz Field are currently: BP (UK) 28.8%, Turkish Petroleum 19%, SOCAR (Azerbaijan) 16.7%, Petronas (Malaysia) 15.5%, Lukoil (Russia) 10% and NICO (Iran) 10%.

[14]A consortium led by Azerbaijani state oil company SOCAR manages TANAP. Shareholders are SOCAR 58%, BOTAŞ 30% and BP 12%.

[15]Bulgargaz has already signed a gas purchase contract with the Shah Deniz consortium of 1 BCM/year from 2020. Preparations for a Greece–Bulgaria Interconnector (IGB) are made, supported by the EU under the "Connecting Europe Facility" (CEF) fund.

general, the country will more likely copy Qatar and become an LNG exporter, rather than investing in very costly, lengthy and bilateral pipelines to Turkey and beyond, or elsewhere in the near future.

Iraq's Kurdistan region (KRG) appears to be a stronger option for new supply to Turkey. Development of the Miran and Bina Bawi fields with 350-400 BCM of gas reserves by Turkish-British company Genel Energy is ongoing with an estimated cost of $ 2.9 billion (Genel Energy 2015). The financing of a $ 2.5 billion, 250 km pipeline remains unresolved, although the tender in process for construction of the stretch on Turkish territory has already begun, and the construction can be accomplished within a relatively short timeframe. Turkish officials have repeatedly referred to the fact that if the transport solution materializes, Iraqi gas would be the cheapest option for imports to Turkey. However, the main obstacle lies in the security issues in Iraq. Companies need increased financing to fund security in Northern Iraq, and the influx of refugees to KRG combined with terrorist attacks in the country has led companies to hold back from investment in the upstream and mid-stream business.

Israel and Cyprus may soon be new gas producers in the Eastern Mediterranean region. The reconciliation of Turkey with Israel and ongoing negotiations on the reunification of Cyprus create opportunities for Turkey to import gas from the Eastern Mediterranean region. Potentially, 10-20 BCM/year of gas can be exported from Israel and Cyprus to Turkey through subsea pipelines once the Cyprus reunification issue is resolved. Having access to a large and growing market with appropriate prices can make development of the Israeli Leviathan field commercially viable and justify the building of a subsea pipeline to Turkey through the exclusive economic zone (EEZ) of Cyprus. Israel can benefit not only economically, but can also gain politically from enhanced trade agreements with Turkey. Rapprochement between Israel and Turkey could restrain Iranian influence in the region in which both sides are interested. Such development would put Turkey at the center of the Easter Mediterranean regional geopolitical and energy network. Russia, acknowledging Turkey as its second largest market, would prefer that Israeli gas not only penetrate the Turkish market, but also, through Turkey, possibly the European market. It seems that this fact plays no minor role in the repeated attempts of Gazprom to enter Israel's gas market and upstream projects (Ellinas et.al. 2016), although Gazprom's attempts to bid for a 30 percent share in the Leviathan field and to sign a deal to export LNG from Tamar have yet failed to materialize.

TurkStream, formerly known as Turkish Stream, was initially designed to consist of four lines with a capacity of 63 BCM/year. It was meant as an alternative to the Trans-Balkan pipeline via Ukraine. After the thaw in bilateral relations between Turkey and Russia, it is back on track, but now designed with only one or two lines to transport 15.75-31.5 BCM/year. One line would serve the Turkish market while a second line would be meant for Southeast European purchasers through a natural gas hub set up by Gazprom with delivery points at Lüleburgaz for the Turkish customer and Ipsala near the Greek border for European customers (Reuters 9.8.2016). Turkey was initially reluctant to transit large volumes of Russian gas to Europe even if it would gain from its transit role. Helping Russia to eliminate Ukraine

as a transit country (together with Nord Stream2) would challenge political relations not only with Ukraine but also with the EU and the U.S. Turkey's long-planned goal to become a regional natural gas hub through the SGC would be challenged. Having the delivery point on non-EU territory would allow Gazprom to avoid compliance with EU legislation. Russia would put the responsibility for gas transportation from Turkey to the market on the purchasers, who would need to request transportation through the TAP. The initial capacity of TAP is 10 BCM/year all dedicated to Shah Deniz 2 gas and exempted from the EU Third Party Access requirements for 25 years. Whether an expansion of TAP to 20 BCM/year to transport Russian gas would get an exemption by the EU is not clear.

For Turkey, transiting large volumes of Russian gas to Europe gives almost no capacity expansion of Turkish domestic infrastructure and leaves the country more dependent on Russian gas for a longer time. It would reduce the chance of growing as a transit hub at the crossroads of the Middle East, the Caspian Sea and Europe. On the other hand, security-of-gas-supply is a reason for Turkey to go for TurkStream. As demand in Western Turkey will continue to grow, interruptions in flows through the Trans-Balkan line could create serious supply shortages, especially in the Istanbul area with 14 million inhabitants. Price discount is another issue for Turkey in deciding whether to accept the project, with a desired 10.25 percent discount (Hürriyet Daily News 11.9.2015). Russia does not have other southern transportation options to eliminate Ukraine in the Trans-Balkan pipeline route after the South Stream and Blue Stream II failures.

Conclusions

Turkey is an increasingly important natural gas and energy consuming country while being at the same time strategically located as a transit country, for oil and now also natural gas, between major consuming areas in the EU and suppliers in the Middle East, Central Asia and Russia. The recent internal political developments in Turkey show that the current government, headed by president Erdoğan, is enhancing and strengthening the institutions of the Presidency and centralizing power to unify the ruling team in the country, bolstering civilian control over the military forces and boosting vibrant industrial and economic development. The failed military coup in July 2016 has reinforced this trend. In this highly volatile environment, Turkey has to deal with internal attacks by Kurdish groups, in addition to various external pressures. These involve attacks of DAESH from Syria, the war in Syria to the south and occasional political tensions with the EU to the west.

Around Turkey, there is large tapped and untapped gas reserves that can assure the country's future energy needs and supply security. Infrastructural problems and capacity constraints in the BOTAŞ system, and legal limitations in its NGML, may create regional gas shortages, especially at times of peak demand. Turkey's ability to import additional volumes of gas is fraught with technical and legal constraints. For Turkey to meet the forecasted natural gas demand growth over the next two decades of almost 3 percent, or 1.5 BCM/year on average, two primary goals need to be achieved. First; to solve the internal political, legal and technical impediments; and second; to make the necessary cooperation

with potential partners in neighboring countries. The latter includes actively promoting a solution of the Cyprus problem; rapprochement with Israel; the security efforts in Iraqi KRG; and solving its gas price disagreements with Iran. Energy is also one of the most important subjects in Turkey-EU relations.[16]

Turkey's role in the geopolitics of natural gas is determined by its domestic situation, as well as by how the political surroundings develop and how Turkey relates to these and how transit routes for gas may develop. The Turkish government has set a number of strategic objectives, including liberalizing and creating a competitive domestic market and ensuring security of gas supply. It also wants to minimize and gradually nullify the state budget deficit and BOTAŞ's losses and shift the risks and investment responsibilities from the state to private companies. Finally, it wants to transform Turkey into an international natural gas trading hub, playing the role of a bridge for hydrocarbon flows from the East to the West.

Turkey's long-term contracts with all its current pipeline gas suppliers, Russia, Azerbaijan and Iran, expire in the 2020s. Contract renewals are beneficial for all parties, but price uncertainty and concerns with the ongoing market liberalization, new gas suppliers, LNG and political developments make the import picture more open. The NGML restricts this process, since BOTAŞ according to the law cannot sign new contracts or renew expired agreements. Furthermore, private companies cannot buy gas from countries from which BOTAŞ is currently importing. To speed up processes, this legal impediment needs to be lifted, or exemptions made. Another obstacle for private companies is the subsidized gas price in Turkey, as they have to sell gas to households below the state-subsidized price. In addition, the capacity of BOTAŞ's gas transmission system is limited on all its six entry points. If, for instance, any supply interruption occurs from the Northwest route from Russia, it will not be possible to substitute this gas from other import directions, for instance, from the east (Azerbaijan or Iran). Russian TurkStream can mitigate this problem in the Western part of the country, as will also TANAP when it becomes operational in 2018, and more LNG regasification capacity. If TurkStream becomes the solution, both Turkey and the EU will suffer from stronger dependency on Russian gas. Thus, Turkey's foreign relations to and balance between the EU and the U.S. on the one side, and Russia on the other, in addition to its relations to countries in the Middle East, Central Asia, and Mediterranean, can become important for the scale and scope of its roles as natural gas consumer and transit country. It may also be true, the other way, that Turkish and EU natural gas import dependency and neighboring countries export dependency may influence bilateral relations themselves.

[16]Turkey joined the EU Energy Community as an observer in 2006 within the scope of its accession negotiations, and a Turkey-EU Energy Dialogue was launched in 2015 (TMFA 2016).

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