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Gas Supply Changes in Turkey

1. Introduction

The Turkish government is in the process of making significant structural changes in the country's energy sector. In particular, it is planning to reduce the share of gas in the energy mix in the power generation sector mainly due to concerns regarding over-reliance on natural gas imports, which is a concern both commercially as well as from a strategic perspective. Because of previous rapid growth in gas consumption for electricity production, the biggest natural gas consumption sector in the country, gas demand growth projections have, in the past, been high. Thus, gas demand growth is not determined by BOTAŞ, the state gas transmission monopolist, but by the power production sector, and for this reason the government has been implementing a successful policy of reducing the share of natural gas in the power generation sector and substituting it through a scheme to support locally produced energy resources.[1]

To help understand the new energy policy that the Turkish government has been implementing, it can be divided into three stages:

1. The first stage involves a policy of decreasing Turkey's absolute dependence on the major single gas supplier – Russia - which provides 53% of total gas imports. Turkey also intends to lessen its dependence on current import and transmission infrastructure capacity which is constrained and cannot meet gas demand in peak periods. It will diversify supply sources and gas import types (both pipeline gas and LNG/FSRU) to ensure imports are available from a wider range of available sources on competitive terms, at the same time storing more gas in the country once downstream infrastructure capacity allows.

2. Stage two is to shift from an energy sector based mainly on imported natural gas to an integrated energy industry based on local resources such as coal and renewables, a move strongly supported by the government. In other words, Turkey is implementing a "national energy and strategic mining policy."[2] This will lessen dependence on external suppliers, and help develop the industrial sector, employment, and the economy.

3. The third stage is to become a natural gas trading center, trading the excess gas that Turkey will have access to as a result of the implementation of stages 1 and 2.

[1] For more information about demand decline and projection see: G. Rzayeva "Turkey's gas demand decline: reasons and consequences", OIES, April 2017, https://www.oxfordenergy.org/wpcms/wp-content/uploads/2017/04/Turkeys-gas-demand-decline-reasons-and-consequences-OIES-Energy-Insight.pdf.

[2] Minister Berat Albayrak's speech at the INGAS conference in Istanbul on 2-3 November 2017.

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Dependence on Imports. Turkey has historically been highly dependent on energy imports from various sources. As a result, the country's annual energy bill has been in the billions of dollars, creating a huge trade deficit of which fossil fuel imports accounts for almost 50%.[3] However, during recent decades this dependence on energy imports has grown even higher, rising from 55% in the 1990s to 76% currently, with the result that Turkey now pays around $55 billion/year on imported oil, oil products, natural gas and coal. The situation with natural gas is the most burdensome, as Turkey imported 46.4 Bcm of natural gas in 2016, more than 99% of its total gas usage,[4] with 53% coming from Russia.[5]

Table 1: Natural gas imports in 2016

Source	Russia	Iran	Azerbaijan	Algeria	Nigeria	Spot LNG	Total
Bcm	24.5	7.7	6.5	4.3	1.2	2.1	46.4
%	53	17	14	9	3	5	100

Source: EMRA.

However, thanks to a decline in gas demand starting from mid-2014, Turkey has managed to avoid some of the pressure of rapidly increasing import dependence on external suppliers, and the consequent effects not only on the country's energy security, but also its internal political situation.

Seasonality of demand. Nevertheless huge seasonal gas demand fluctuations remain, and gas demand during the peak winter season surges to a level that challenges BOTAŞ's peak delivery capacity, especially if gas imports are interrupted. Turkey's current gas transmission system capacity (as of October 2017), taking into account existing bottlenecks and daily entry point send out capacity, is around 200 mcm/d excluding storage capacity, whereas peak demand, especially when the temperature is below the seasonal norm, can surge to 260 mcm/d (Figure 1).[6] At such times BOTAŞ is forced to prioritize residential use by instructing both state-controlled utilities and independent gas-fired power producers (IPPs) to reduce gas consumption temporarily by as much as 50% of contractual levels.

The demand seasonality is one of the reasons why Turkey is currently investing billions of dollars in the expansion of the BOTAŞ gas transmission system and the capacity of land-based and FSRU LNG receiving terminals, and in the construction of two new import pipelines—TANAP and TurkStream. These projects will remove bottlenecks and help solve the capacity issue. They will also strengthen BOTAŞ's hand in the negotiation of price and other contractual terms with the suppliers, especially in the 2020s when all current Long-Term Contracts with pipeline suppliers are due to expire.

Increase in capacity. BOTAŞ expects its maximum daily gas supply capacity to almost double by 2023, from the current 252 mcm/d (including storage capacity) to 473 mcm/d[7] as new projects come on stream. This will extend Turkey's ability to import gas from various sources by eliminating technical constraints. By doing so, Turkey intends to ensure supply security during the peak demand seasons and to reduce its dependence on existing suppliers, allowing it room to manoeuvre between them and other new options.

Turkey is also expanding capacity at its existing LNG receiving terminals and building new FSRUs (Map 3), taking advantage of the fact that this method of importing natural gas is available in a flexible and

[3] Turkey's trade deficit in May 2017 was $7.3 billion, and had grown from $4.2 billion in October 2016.
[4] According to EMRA's 2016 report, in 2016 9 upstream companies in Turkey produced 367 mmcm[3] of gas which is less than 3.67% in comparison with the production level in previous year. Total gas import in the country last year was 46.4 bcm. The gas production in the country constitutes only 0.8% of total consumption.
[5] Turkish Natural Gas Market Report 2016, Republic of Turkey Energy Market Regulatory Authority (EMRA), Ankara 2017, http://www.epdk.org.tr/TR/Dokumanlar/Dogalgaz/YayinlarRaporlar/Yillik.
[6] Argus Turkey Report, September 2016 (Available for subscribers).
[7] BOTAS presentation.

near immediate manner. This will give BOTAŞ and private companies an advantage in meeting the growing demand in winter time, instead of having to increase annual pipeline contract quantities (ACQ) due to the application of "take or pay" clauses.

Nevertheless, current government policy may seem anomalous: giving guarantees to both BOTAŞ and private LNG companies to increase infrastructure capacity and almost doubling its multi-billion dollar investment, at a time when overall demand in Turkey has been decreasing for the last three years, with only modest growth expected in the next few years.

New import sources. This paper aims to look at Turkey's imports from Ankara's perspective, in addition to its options and plans in the longer run when additional import projects could be available. It will discuss how Turkey is reacting to the various options and what the benefits/ stakes/concerns surrounding each option are. The issues arising from the availability of gas (from Azerbaijan, KRG (*Kurdistan Regional Government)* and Iran), the complex political and contractual relations with suppliers (Russia and Iran), infrastructure capacity expansion (LTC LNG/FSRU, spot LNG, transmission system, TANAP, and TurkStream) will be discussed from the perspective of Turkey's energy economy. Having discussed this, the paper will look at Turkey's objective view and its ability to balance and manoeuvre between suppliers from the perspective of its political, commercial, energy security, and contractual interests.

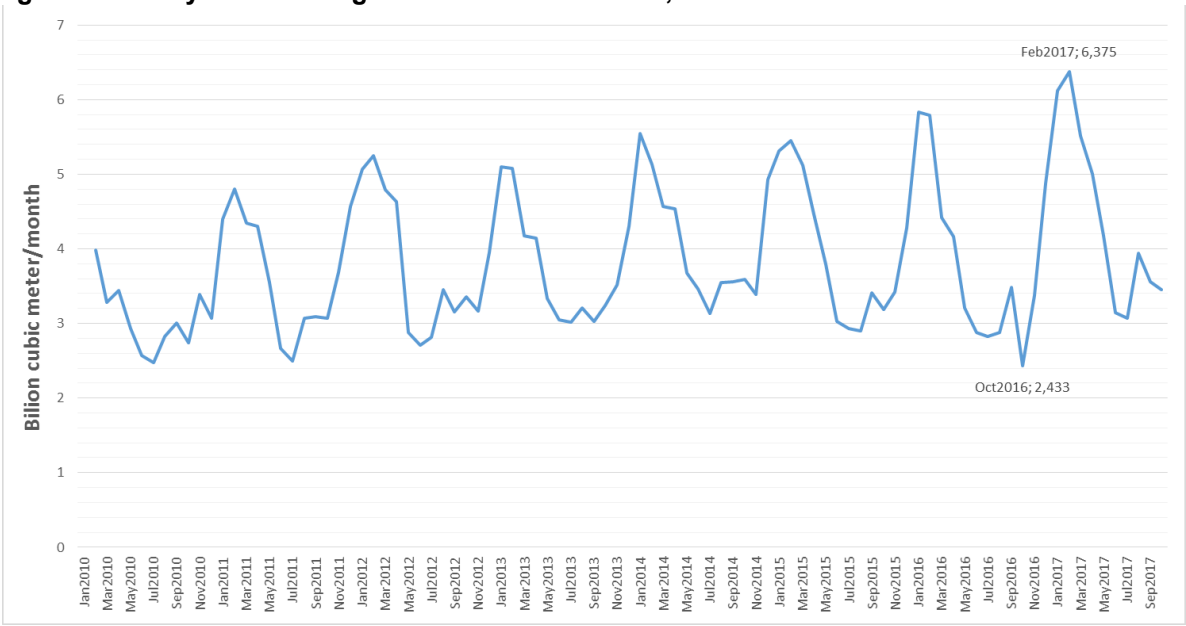
With the development of TANAP and TurkStream, Turkey is effectively becoming a key transit route for the southeast European market. This paper will therefore also look at the wider implications for Europe - whether to accept gas through Turkey from a project it strongly supports—TANAP—and/or a project it strongly opposes—TurkStream.

2. BOTAŞ gas transmission system capacity extension

New investment in pipelines. BOTAŞ is investing billions of dollars in expanding its gas transmission system capacity. This includes laying down new pipeline spurs to regions where none exist, building compressor stations, participating in two new international pipeline projects, increasing the capacity of existing LNG terminals, building new ones (including FSRUs) and increasing the existing storage capacity. Although building new pipelines and providing natural gas pipeline coverage to the entire country can be seen as more of a social project and part of the government's responsibility to secure access to natural gas even for the populations of remote regions, investing in additional entry point capacity by constructing new infrastructure projects is a policy that appears to contradict the current situation, given that annual gas demand has been falling for the last three years[8], with only slow growth anticipated over the next decade. Nevertheless, the government continues to give capacity expansion guarantees to BOTAŞ and private companies that will almost double the entry point send out capacity. This can be explained by the government's wish to ensure supply security and eliminate bottlenecks during sharp peak demands. But, inevitably, one result of increasing pipeline capacity will be to drag down even further the overall utilization rate of Turkey's gas infrastructure from the figure of around 63% in 2016.[9]

[8] G. Rzayeva, OIES, April 2017
[9] Turkey's uncertain gas future, Interfax Energy Special report, October 2017. Available for subscribers.

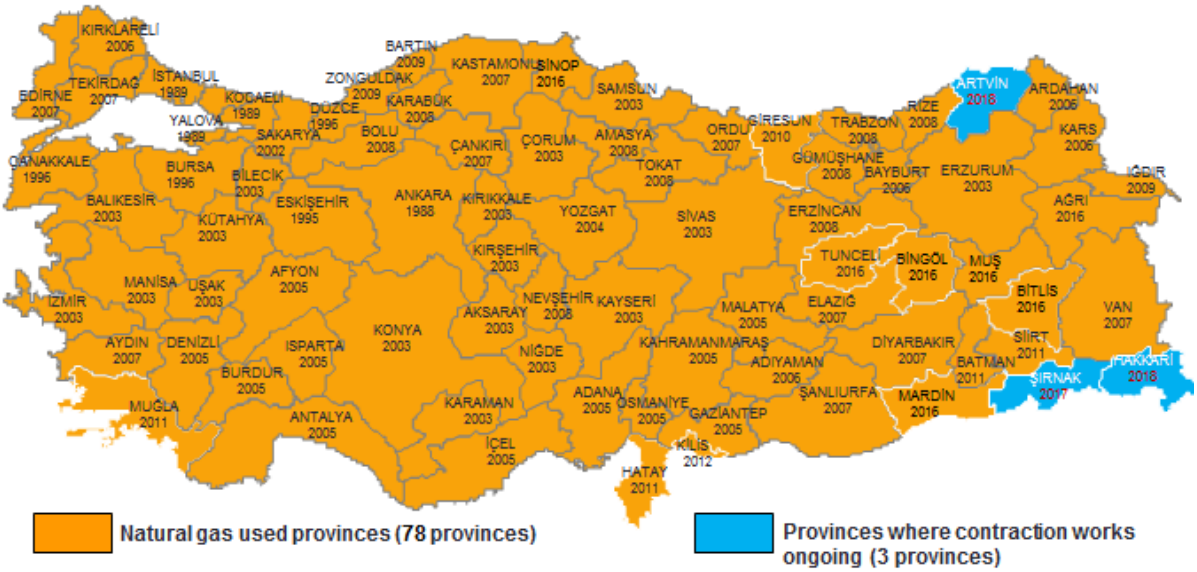
Figure 1: Turkey's seasonal gas demand fluctuations, Bcm/month



Source: World Energy Council, http://dektmk.org.tr/upresimler/QR6TR.pdf

BOTAŞ's natural gas pipeline grid is already well-developed, covering key demand districts and gas-fired power and industry segments. Almost the entire country has been connected to the grid except for three provinces (583 districts)—Sirnak, Hakkari, and Artvin (Map 1). In 2016, 479 km of natural gas pipelines were constructed and the total length of the pipelines has now reached 13,443 km.[10] The company plans to lay down an additional 11km of pipeline in Sirnak by December 2017, 8 km of pipeline in Hakkari by August 2018, and 76 km in Artvin by November 2018.[11]

Map 1: Turkish provinces served by the BOTAŞ natural gas grid



Source: BOTAŞ

[10] BOTAS presentation.
[11] Albayrak: 2018'de doğalgazsız şehir kalmayacak, Milliyet, October 2017, http://www.milliyet.com.tr/albayrak-2018-de-dogalgazsiz-ekonomi-2533638/.

Map 2 shows the four existing entry points into the Turkish grid for pipeline gas imports from *Azerbaijan, Iran and Russia*. These are at Türkgözü on the eastern border of the country, accepting gas from Azerbaijan with a total capacity of 19.1 mcm/d; Gürbulak, in Bazargan, with a total capacity of 28.6 mcm/d through which gas from Iran is delivered; Durusu, with total capacity of 47.3 mcm/d, the entry point for gas shipped through the Blue Stream pipeline; and Malkoclar, accepting Gazprom gas from the Western Line pipeline with total capacity of 51.4 mcm/d.

Transmission constraints. BOTAŞ's gas transmission system entry point send-out capacity is constrained in all directions, and this limits the company's ability to offtake gas from all pipeline and LNG suppliers at the maximum level of ACQ, or above these volumes when necessary.

For instance, BOTAŞ imports around 14 bcm/year of gas to the eastern part of Turkey from Azerbaijan and Iran. The industrially less developed eastern and southeastern regions consume only around 3 bcm/year of gas, with the central and western part of the country consuming the balance of the supply. For this reason, BOTAŞ has to transport substantial quantities of gas from the east to the west, and due to bottlenecks in the system has been unable to do so when import volumes are increased in winter time to meet seasonally high demand.

This creates difficulties for BOTAŞ in meeting its contractual obligations to offtake the minimum level of contracted volumes and avoid paying fines in compliance with "take or pay" clauses applied in all the import contracts of BOTAŞ and private companies. To solve this problem, BOTAŞ plans to build four compressor stations in the eastern and central parts of the country. The Hanak compressor station, which will add 13.4 MW of capacity, was due to be commissioned by December 2017 to solve the capacity constraint issue with gas imports from Azerbaijan. The 10.5 MW Doğubeyazıt compressor station will also transmit gas from Azerbaijan and is due online in July 2018. The 16 MW Sivas compressor station will also be handed over in July 2018 and will also help resolve the bottleneck in transporting gas from the east to the central part of the country. The 15.3 MW Sungurlu compressor station is planned to be built in the north-central part of the country by August 2019.[12]

Supply interruption. The existing technical barriers and bottlenecks in the pipeline infrastructure led to BOTAŞ imposing limitations on both state-controlled utilities and independent gas-fired power producers (IPPs) during January 2017, when the temperature was below the seasonal norm. It is possible to offset the shortage of natural gas in the power generation sector with hydro power during the wet season, however, gas shortages typically occur when the season is dry and insufficient renewable energy, which is strongly supported by the government, is produced to offset the natural gas shortfall.

Storage. The storage capacity in Turkey is limited. In 2017 BOTAŞ-owned Tuz Gölu (Salt Lake) and Marmara Değirmanköy had storage capacities of only 31 mcm/d and 3 bcm/y.[13] This does not allow BOTAŞ to stock large volumes of gas during low demand periods and sell it during the heating season. Instead, BOTAŞ seeks gas from private firms, which could have stocks at the Silivri storage facility owned by Turkish state company Türk Petrolları (TP) to sell during the high demand season.

New supply sources. BOTAŞ and private LNG importing companies have not been able to increase import volumes and find alternative supply sources which would increase supply diversity, and might lead to a relaxation in contractual terms.

Turkey, through its state company BOTAŞ, is however, with international partners realizing two new international pipeline projects—*TANAP and TurkStream.* These will add three more entry points and almost double the total send out capacity of the system, in conjunction with other new projects. Both new pipeline projects will contribute to Turkey's supply security and allow BOTAŞ to receive and transmit extra gas through its system and help meet demand surges when required.

[12] BOTAS close presentation.
[13] Botas close presentation

TANAP will cross through Turkey delivering Azerbaijani gas to European customers with delivery points in Turkey at Eskisehir and Trakya. BOTAŞ will offtake its 6 bcm/year of Shah Deniz Phase 2 (SD2) contracted gas from mid-2018, at Eskisehir, which will have a capacity of 16.4 mcm/d. The Trakya entry point will deliver up to 8.4 mcm/d from the Azerbaijan SD2 field, with room for later expansion. Finally, the planned new Kıyıköy entry point, with a capacity of 47 mcm/d, will be the point at which BOTAŞ and Turkish private companies will receive their gas through the dedicated TurkStream pipeline (Map 2).

Map 2: BOTAŞ gas transmission system entry point capacity, mcm/day

Source: BOTAŞ.

In this context, the daily natural gas supply which will enter BOTAŞ Transmission System from the Eskişehir location will be 16.4 mcm/d. In addition, at Trakya-Keşan, TANAP gas will enter the BOTAŞ transmission system via a second measurement station with a capacity of 8.2 mcm/d (Table 2).

Projected pipeline import capacity. BOTAŞ currently projects that the capacity of the Western (Balkan) pipeline through which BOTAŞ and private companies currently import 14 bcm/year from Gazprom, will be downgraded from the current 51.4 mcm/d to 14.7 mcm/d after 2019, when TurkStream will come online and Gazprom will reduce its gas supplies to Turkey and southeast European customers through Ukraine by a factor of 3.5 (Table 2).

There are no plans to expand the capacity of Blue Stream, the Iran–Turkey pipeline, and the Baku–Tbilisi–Erzurum (BTE) pipeline, which delivers gas from SD1 to the Turkgozu entry point, in the longer-run. The capacity of BTE is not expected to be increased in the foreseeable future because after 2022, when the long-term contract with the Shah Deniz (SD) consortium is due to expire, gas production from the SD Phase 1 development most likely will be declining and there will not be sufficient volume to extend the contract. It is most likely that Phase 2 will replace Phase 1 volumes once the contract expires. Any possible additional volumes from Azerbaijan most likely will be delivered through TANAP.

Therefore, all the additional send out capacity in the system will be supplied by the new TANAP and TurkStream pipelines. Startup volumes of around 2 bcm/year from the SD2 field will be delivered to the Turkish market through TANAP starting from 2018, reaching the planned plateau level of 6 bcm/year in 2021.

Table 2: Pipeline entry points and capacity, mcm/day

Entry Points	2017	2018	2019	2020	2021	2022	2023
Malkoçlar-Balkan	51.4	51.4	51.4	**14.7**	14.7	14.7	14.7
Durusu-Blue Stream	48	48	48	48	48	48	48
Gürbulak-Iran	28.5	28.5	28.5	28.5	28.5	28.5	28.5
Türkgözü-Shah Deniz	19	19	19	19	19	19	19
Eskişehir-TANAP	0	**5.7**	**11.3**	**14**	**16.4**	16.4	16.4
Trakya-TANAP	0	0	0	0	**8.2**	8.2	8.2
Kıyıköy-TurkStream	0	0	0	**46.9**	46.9	46.9	46.9
TOTAL	**146.9**	**152.6**	**158.2**	**171.1**	**181.7**	**181.7**	**181.7**

Source: BOTAŞ

3. Gas supplies from current sources

As of 2017, Turkey has four international gas import pipelines with total technical import capacity of 146.9 mcm/d (52.9 bcm/year)[14] through which it imports gas from Azerbaijan, Iran, and Russia. Given the import contract portfolio (Table 3), the dominance of BOTAŞ in gas imports into the country will remain unchanged at least until 2026, despite the provisions of Natural Gas Market Law 4646 (NGML 2001) on liberalization of the gas market. As required under the Law, BOTAŞ transferred 4 bcm/year to private importers (Enerco Enerji, Bosphorus Gaz, Avrasiya Gaz, and Shell Enerji) as a result of a contract transfer tender process conducted in 2005. The companies started importing gas from Gazprom Export LLC via the Western Route in 2009, and the contracts between Gazprom and the private importers will expire in 2021. The 6 bcm/year BOTAŞ Long Term Contract with Gazprom expired at the end of 2011 and, in conformity with NGML 2001, BOTAŞ did not extend it. The volumes were instead transferred to four private companies (Enerco Enerji, Bati Hatti, and Kibar Enerji), which enabled them to import 6 bcm/year from Russia via the Western Line pipeline starting from 2013, lasting until 2043. Apart from these seven private companies, no new contract transfers or auctions have taken place since 2009.

[14] Botas presentation

Table 3: BOTAŞ long-term contracts with its suppliers

Current Agreement	Volume (bcm/year)	Date of Agreement	Status	End Date
Algeria (LNG)	4.4	1988	In operation	Oct-24
Nigeria (LNG)	1.3	1995	In operation	Oct-21
Iran	9.6	1996	In operation	Jul-26
Russia (Blue Stream)	16	1997	In operation	End of 2025
Russia (West)	4	1998	In operation	End of 2021
Turkmenistan	15.6	1999	Pending	
Azerbaijan (Phase 1)	6.6	2001	In operation	Apr-21
Azerbaijan (Phase 2)	6	2011	2017/2018	2032/2033
Azerbaijan (BIL)	0.15	2011	In operation	2046

Source: BOTAŞ.

Turkey's major concern in relations with the current gas suppliers relates to its biggest gas supplier, Russia, from which it currently imports 53% (24.54 bcm) of its total natural gas consumption. This has led to both energy security concerns and potential geopolitical risks. Consequently, Turkey has been trying to decrease its energy dependence on Russia by reducing the share of gas in the energy mix and expanding downstream infrastructure to ensure alternative import sources and supply. There is no doubt that these measures will strengthen the position of Turkish companies in negotiations for new contracts with Gazprom as well as other suppliers after the current contracts expire in the 2020s. Nevertheless, the figures show that Turkey is in fact increasing its energy dependence on Russia - by concurrently building new projects such as the TurkStream natural gas pipeline and the Akkuyu Nuclear reactor.

Contract terms. Turkey's main concerns with regard to all the long-term contracts, including the contract with Gazprom,that Turkish importers will want to address are:

a) *Price:* BOTAŞ is in arbitration at the UN Commission on International Law with *Gazprom* over a promised 10.25% discount on the standard gas contract price. A preliminary agreement was reached, with a price reduction to be backdated to the start of 2015. However, the agreement was not signed because Russia had made the cut conditional upon the signing of an intergovernmental agreement for the 31 bcm/year TurkStream pipeline project as relations between the two countries soured in late 2015. Separately, five private Turkish importers have been in arbitration with Gazprom since February 2017 over gas prices in 2017. A decision will only come in 2019, as the parties did not reach a deal in October before the court's ruling.

   This situation creates difficulties with some Turkish wholesale companies that may be reluctant to renew contracts with private sector importers for 2018 if the import price uncertainty continues. The problem is that private sector importers have been selling gas to wholesale marketers at prices anticipating a 10.25% price reduction from Gazprom, including clauses that the marketer will pay more if the importers do not get the discount. Wholesalers are taking the risk this year, as they need to meet obligations from contracts with consumers, which were concluded in late 2016 when there was no indication of a long-term price dispute between importers and Gazprom. They may not take the same risk for 2018 and could either shrink their portfolios or decide to exit the market[15].

   Private sector importers' contractual volumes with Gazprom are 10 bcm/year, while their combined take-or-pay obligations are estimated at around 8 bcm/year. Of these, private-sector importers have sold around 5 bcm/year to wholesale firms under long-term contracts that

[15] Argus Turkey report, September 2017

include 2018,[16] but importers may face difficulty in securing sales for the remaining 3 bcm/year for 2018 unless a deal on import prices is reached this year.

Surprisingly, this did not encourage Gazprom and the private companies to reach an agreement in October before the official filing of the case, as Gazprom is aiming to achieve record sales and maintain its market share in Turkey, while Turkish importers need to meet their take-or-pay obligations.

All the BOTAŞ and private importers' LTCs are linked to oil and oil products prices, which fluctuate seasonally as well as responding to other oil market issues. The Turkish importers would want to change the indexation in a new contract and obtain a lower price for the imported gas.

Turkey's Russian pipeline gas import costs are expected to increase in the fourth quarter of 2017 in line with higher crude-linked prices. According to an Argus Turkey Report, fourth-quarter oil-indexed gas prices, assuming a 10% discount from Gazprom, were around Euro17/MWh ($211/mcm) for the end of September[17] (Figure 2), a significant increase from the previous months, in line with the rise in oil prices caused by lower stock levels, a stronger demand outlook and continued OPEC and non-OPEC production cuts. It is expected that the cost of Russian gas will continue to rise as demand surges in winter. BOTAŞ and private importers will attempt to obtain the 10.25 % discount in the new contract even if the arbitration decision is negative.

Although BOTAŞ received a 13.3% discount on the standard contract for Iranian gas in 2016 as a result of an arbitration ruling,[18] the Iranian gas price remains relatively high in late 2017 — above $200/mcm (Figure 2), and is likely to rise further in the first quarter of 2018, the coldest months in Turkey. However, the price cut received makes it most likely that the Turkish importers will have less incentive to review the pricing in a new contract.

The *Shah Deniz Phase 1* gas price was the highest price for imported gas in the third and fourth quarters of 2016 and remained so in the first and second quarters of 2017, but in the third quarter of 2017 was the same as the Iranian gas price—slightly above $200 (Figure 2). However, it is most likely that the price rise trend will continue in the following two quarters. It is most likely that BOTAŞ and private importers will want to review pricing in the new contract.

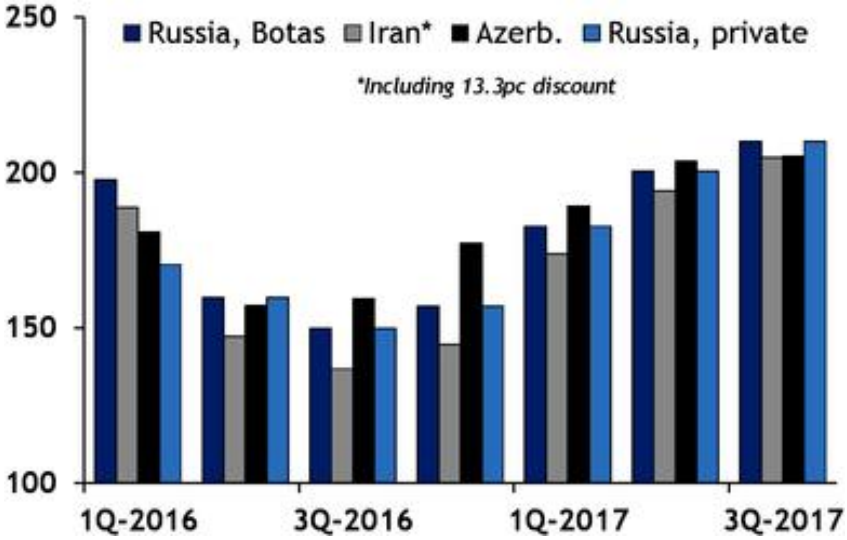
b) *"Take or pay" clause:* This exists in all the LTCs with Turkey's pipeline gas suppliers. The Gazprom contract's ToP clause for gas delivered through the Western Line pipeline to BOTAŞ is 80 % with a make-up period of five years, whereas with private companies it is a minimum 8 bcm/year of gas offtake volumes out of a 10 bcm/year ACQ. There is a 25-year make up period for gas imported through the Blue Stream pipeline, which is much better for BOTAŞ. The Shah Deniz Phase 1 ToP clause minimum offtake volume is 75 % with a make-up period of four years. There is an 80% minimum offtake in the contract with Iran with a 5-year make up period.

Strong seasonal fluctuations in gas consumption make it difficult to compensate low offtake in low demand seasons with high offtake in high demand periods, especially in the eastern part of Turkey as capacity constraints in the BOTAŞ grid there restrict imports. Up to 2015 BOTAŞ was not able to import 6.6 bcm/year of contracted gas from Azerbaijan because of these constraints. The problem is being solved with the construction of the new Hanak compressor station.

[16] Argus Turkey report, September 2017.
[17] Argus Turkey report, September 2017.
[18] Turkey wins gas price row against Iran in court, Hurriyet Daily News, February 2016, http://www.hurriyetdailynews.com/turkey-wins-gas-price-row-against-iran-in-court-94643.

c) *Destination clause*: In 2016 BOTAŞ re-exported 0.67 bcm/year of Azerbaijani gas to Greece,[19] but has not been able to do so with Russian and Iranian gas because of destination clauses in the contracts. It is most likely that BOTAŞ, in line with the government's ambition to become a gas exporting country in the next ten years, will attempt to lift this condition in the contracts during renegotiation. However, it should be noted that even now, with 6.6 bcm/year of SD gas and LNG, both LTC and spot, BOTAŞ can actually export around 10 bcm/year of gas. Due to infrastructure capacity constraints this has not been possible to date.

Figure 2: Natural gas price for Turkey, $/mcm



Source: Argus

Future contract negotiations

It is quite difficult to predict what will happen after the present contracts expire, however, it is most likely that the 4 bcm/year of gas imported by the four[20] Turkish private sector companies through the Western Line pipeline from *Gazprom* will be renewed after the contract expires at the end of 2021. According to the NGML, no private company can import gas from a country with which BOTAŞ has a supply contract in operation, and the companies do not have import licenses to replace Russian gas with gas from other sources. They may however import LNG from various sources. Contract extension will largely depend on the price agreement between the companies and Gazprom, which will be clarified by the arbitration ruling in 2019. BOTAŞ's 4 bcm/year of contracted imports through the Western Line is also very likely to be renewed after 2021 as the company does not have any realistic alternative source to replace the Russian gas, should any political crisis recur, except LNG, which is currently almost 20% more expensive than imported pipeline gas.[21] Similarly, there is no serious reason not to renew the contract for 16 bcm/year imported by BOTAŞ through the Blue Stream pipeline, which is due to expire at the end of 2025 and has a better ToP clause than any other LTC. Furthermore, 16 bcm/year from a single source delivered to the north-west part of the country is vital in terms of supply security and energy security of the most-intensely gas-consuming region and cannot be put at risk.

Azerbaijan is Turkey's only natural gas supplier that has not been involved in a serious price dispute with BOTAŞ or subject to other political or geopolitical tensions. The SD1 field started producing in late 2006, reached its plateau level in 2010, and should enter its tail-off in 2024–2025, when production levels may decrease by around 2 bcm/year or more, depending on well productivity. There may not be enough natural gas to renew the SD1 contract for a longer term. The 15-year sales and purchase

[19] EMRA Annual Report 2016.
[20] Shell, Bosphorus Gaz, Enerco Energy, Avrasiya Gaz A.S.
[21] The LNG price for Turkey in the first half of December was assessed by Argus at $8.8/mn Btu and at $8.9/mn Btu in the second half of December (delivered price, including freight).

contract signed by the SD consortium and BOTAŞ to import 6 bcm/year of SD Phase 2 natural gas could simply replace the 6.6 bcm/year of SD1 gas, rather than being an additional volume. Another scenario is that the remaining volume from SD1 could be added to the contracted 6 bcm/year of SD2 natural 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.[22]

Turkey does not have any choice other than to renew its sales and purchase contract with *Iran* upon expiry in 2026 because there is no other source of gas to fill this contracted volume. Problems with natural gas supplies and other disagreements between the two countries have always made relationships complicated. Delivery shortfalls during the peak seasonal demand in Iran have been one issue, but BOTAŞ's inability to take all contracted volumes due to transmission system capacity constraints in the eastern part of Turkey and temporary reductions in demand during low demand seasons are also important. Turkey has sought a 30% price reduction and, a removal of the "take or pay" clause, and has taken the case to arbitration twice. In both cases, Turkey won, receiving $800 million[23] and $1 billion, a 13.3% price reduction. As a result of the 13.3% discount the Iranian gas price has been the lowest available since the second quarter of 2016, and remains so in third quarter of 2017, along with SD2 gas (Figure 2).

Last year Turkey imported only 7 bcm/year from Iran out of the contracted 9.8 bcm/year, despite the price cut. In the short- and mid-run it is unlikely that Iran will be able to export extra volumes of gas to Turkey due to rapidly growing domestic demand, gas injection into the oil fields, and plans for the export of value-added petrochemical products using gas as feedstock.

4. Potential new suppliers: Iraq and the East Mediterranean region

There are two potential alternative sources of gas supply to Turkey - Iraq and the East Mediterranean region (EastMed) – but supplies from both are fraught with political, geopolitical and economic difficulty, so that their materialization remains relatively remote. Turkey remains hopeful about possible gas imports from these two regions, and its role as a transit country to Europe, but fully realizes the existing financial and political obstacles.

The Kurdistan Regional Government (KRG) has always been deemed a strong option for new supply to Turkey. Turkish officials have in the past repeatedly referred to the fact that if a transport solution were to materialize, natural gas from northern Iraq would be the cheapest option for imports to Turkey. However, the main obstacle lies in security issues. Companies operating in northern Iraq need increased financing to fund security, and the influx of refugees to KRG combined with terrorist attacks in Iraq has led companies to hold back from investment in the upstream and mid-stream business. Furthermore, the recent pro-independence referendum in KRG and strong opposition from the Turkish government to the possible independence of Kurdistan has frayed bilateral political relations. Seeking unprecedented sanctions against the autonomous region, the central Iraq government in Baghdad attempted to restrict trade at the borders of the Kurdistan region and in addition has sought to unite with Turkey and Iran in its policies.

Now that the Iraqi central government seems to be taking control over KRG and its border with Turkey, all decisions with regard to energy resource exports will most likely be taken by the central government. This has already led to intense conflict between the KRG and Baghdad over Iraq's northern exports, in particular over the federal government's attempts to move further towards realizing its ambition to become a major gas exporter. The existing tensions between the two governments may delay any gas project developments in Kurdistan itself. Turkey is expected to refrain from any possible confrontation with KRG or the Iraqi government in the run-up to the Turkey Presidential and Grand General Assembly

[22] Austvik, O.G, Rzayeva, G. "Turkey in the Geopolitics of Natural Gas", Harvard Kennedy School, Mossavar-Rahmani Center, September 2016, https://www.hks.harvard.edu/sites/default/files/centers/mrcbg/files/66_final.pdf.
[23] Turkey wins gas price row against Iran in court, Hürriyet Daily News, February 2, 2016.

elections that will take place in November 2019. Consequently, it seems that there will not be any gas import into Turkey from KRG in the medium term and, depending on political relations between Iraq and Turkey and stability in Iraq in general, the development of gas projects and exports to Turkey could come online no sooner than the mid-2020s.

Israel and Cyprus could soon become new natural gas producers in the eastern Mediterranean region with gas available to export. The reconciliation between Turkey and Israel and ongoing negotiations on the reunification of Cyprus appear to be laying a potential political foundation for Turkey to import natural gas from the eastern Mediterranean region. Potentially, over 10 bcm/year of natural gas could be exported from Israel and Cyprus to Turkey through subsea pipelines, which would have to go through Cyprus once the island's reunification issue is resolved. However, at an estimated cost of 6.5 billion euros, the subsea pipeline to Turkey plus field development expenses will make this project hard to carry through and commercially unviable, especially as natural gas prices remain depressed.

According to Israeli law gas cannot be exported from Israel at a price lower than the sales price to the domestic market, which is currently $5.25/Mmbtu and is expected to exceed $6 in the future. With current gas prices in Europe around $6/Mmbtu and in Turkey around $7/Mmbtu, it seems that the companies developing the fields in Israel and Cyprus have no commercial incentive to invest in building costly infrastructure. They may end up selling their gas in the market for a below-cost price, which, with all the OPEX, CAPEX and transportation costs, is around $8/Mmbtu. Gas transportation to Europe through Greece and Italy would be even more costly due to the longer distance. This makes the realization of this project unlikely for the time being. Furthermore, with TurkStream coming online after 2020, Gazprom will have capacity for price damping. Any price cut that Gazprom will grant to the Turkish importers will significantly affect the financial feasibility of new alternative gas pipeline projects to Turkey.

However, from the Turkish perspective, possible gas deliveries from EastMed to Turkey fully satisfy Ankara's interest in diversifying supply sources and accumulating as much gas as possible in the country's storage facilities once their capacity is expanded, not only to ensure peak delivery flexibility but also to re-export gas to neighbouring European countries. From a political point of view, being the major gas market for EastMed gas would put Turkey at the centre of the Eastern Mediterranean regional geopolitical and energy network. Russia, acknowledging Turkey as its second largest market, is concerned about Israeli natural gas penetrating not only the Turkish market, but also, through Turkey, possibly the European market. It seems that this fact has played no minor role in the repeated attempts by Gazprom to enter Israel's natural gas market and upstream projects, although Gazprom's attempts to bid for a 30% share in the Leviathan field and to sign a deal to export LNG from Tamar have as yet failed to bear fruit.[24] However, whatever the political interests are, it is highly unlikely that they will override the economics of the projects.

5. Extension of pipeline capacity—existing and new projects (TANAP and TurkStream)

According to Turkey's legislation, construction of new pipelines for oil and gas transit via the national transmission system are not considered internal market activities. All such pipelines are "international", although ruled by the Turkish legislation. The rules for transit are set out in *Transit Law No. 4586* of 2001, which also assumes the existence of intergovernmental agreements for newly built transit pipelines between states. To date, Turkey has no natural gas transit pipeline in operation.[25] The only

[24] Austvik, O.G, Rzayeva, G. "Turkey in the Geopolitics of Natural Gas", Harvard Kennedy School, Mossavar-Rahmani Center, September 2016, https://www.hks.harvard.edu/sites/default/files/centers/mrcbg/files/66_final.pdf.
[25] Energy Policies of IEA Countries: Turkey. 2016 Review, IEA, https://www.iea.org/publications/freepublications/publication/EnergyPoliciesofIEACountriesTurkey.pdf.

existing transit pipeline in Turkey is the Baku–Tbilisi–Ceyhan pipeline, which transports Azerbaijani oil from the Azeri-Chirag-Guneshli field to the Turkish Mediterranean port of Ceyhan.

Within the Transit Law, both the Trans-Anatolian and TurkStream pipelines are transit pipelines that will transport 16 and 31 bcm/year of gas from Azerbaijan and Russia respectively, and will transit 10 and 14.75 bcm/year to external markets. As was described in section 3, the BOTAŞ pipeline daily entry send out capacity will be expanded based only on TANAP and TurkStream, which will add 71.5 mcm/day combined. For Turkey, each of these pipelines has a different role to play.

TANAP, which will transport 16 bcm/year from the Shah Deniz Phase 2 development in the Azerbaijani sector of the Caspian Sea, has significant strategic importance rather than just providing infrastructure capacity expansion for deliveries from the eastern to the western part of the country. Scalable up to 32 bcm/year, at a total cost of $9.5 billion, TANAP, along with enabling Turkey to enhance security of gas supply, also fully satisfies the Turkish government's new energy policy of diversification of supply sources, increase of import volumes into the country, and re-export of surplus gas. The sales and purchase agreement between BOTAŞ and the SD consortium for the import of 6 bcm/year to the Turkish market beginning in 2018 does not include a destination clause and allows BOTAŞ, when prices are at a maximum, to re-export gas from the SD field as well as from any other potential sources available through TANAP. According to Minister Albayrak, even though Turkey does not possess fossil fuel resources, the country's aim is to become a natural gas exporter in ten years' time by accumulating more gas in the country. Ankara aims to significantly increase its political weight with the countries to which it will export gas and become an important regional player as a natural gas trade nexus.[26] TANAP can play an important role in realizing Turkey's ambitions by transporting and transiting gas potentially from Turkmenistan, Iraq, and EastMed, if and when available.

From the perspective of Turkish interests, ***TurkStream*** is important to Turkey for two reasons: firstly, to enhance supply security by eliminating a transit country—Ukraine—and enabling a direct line between Turkey and Russia; secondly, by transiting 14 bcm/year of Gazprom gas to Greece, Bulgaria, and Italy, Turkey will strengthen its position as a significant transit country not only for the gas exporting countries, but also for the EU. This development answers Ankara's strategy of increasing its political weight with the help of natural gas. Moreover, Turkey's expectations from Russia are that the Turkish natural gas importers will be importing Russian gas through TurkStream at a discounted price and will receive better contractual terms in return.

TurkStream will not add to Turkey's strategy of minimizing its dependence on Russian gas supplies, and Ankara would want to replace some volumes with a less expensive and more secure alternative, to decrease dependence. Given the close political ties with Baku, this could be extra volumes from Azerbaijan. However, as the Absheron field stage 2 development will not come online until the second half of the 2020s,[27] in the short- to mid-run there will not be additional volumes available for Turkey to decrease its dependence on Russia. Having no available alternatives to achieve its goal, Turkey, contrary to its energy policy, will strengthen its import dependence on Russia with TurkStream. Moreover, with TurkStream, Turkey is aiming to increase the interdependence between the two countries on gas imports/exports, through Russia becoming dependent on Turkey as a transit country for Gazprom gas transportation to southeast Europe, the Balkans, central Europe, and it is possible that import volumes could actually be increased if the promised price cut is granted. However, Ankara and Moscow have delicate and vulnerable diplomatic relations which are set against the background of the current impasse in Syria and Ukraine, where the two states have disparate political interests. Nevertheless, they have been compelled to collaborate in a number of spheres,[28] such as multi-billion energy projects like TurkStream and the Akkuyu nuclear power plant. Given the delicate diplomatic

[26] Minister Berat Albayrak's speech at the INGAS conference in Istanbul on 2-3 November 2017.
[27] Absheron Phase 1 Development is scheduled to come online in 2019 with ramp up production of 1.5 bcm/year for the Azerbaijani domestic market. The Phase 2 is under discussion and planned to come online mid-2020s with plateau production of 5 bcm/year part of which might be exported.
[28] Turkey's uncertain gas future, Interfax Energy Special report, October 2017. Available for subscribers.

relations, TurkStream seems to be vulnerable, and any possible political crisis between Ankara and Moscow might lead to postponement or even cancelation of the project.

With the development of TANAP and TurkStream, Turkey for the first time ever is effectively becoming a key transit route for the southeast European gas market. This is one of the reasons why Ankara is actively participating in and strongly supporting both pipeline projects, almost equally. On the other hand, it appears that Turkey, with its close collaboration with Moscow, is conducting a policy of "the enemy of my enemy is my friend" vis-à-vis the EU, given the existing tensions between Ankara and Brussels. With TANAP, Turkey will gain from its important transit role for the EU and its weight will only increase if and when TANAP is operating at full capacity (32 bcm/year) given the strong political support of the EU and also the US. In contrast, Ankara may face US sanctions if it continues to support the Russian TurkStream project, along with strong opposition from Brussels and impaired relations with Ukraine. Another potential risk for Turkey is that Turkey's long-planned goal to become a regional natural gas hub through the Southern Gas Corridor would be challenged. Having the delivery point for Russian gas entering Europe on non-EU territory (Turkey) would allow Gazprom to avoid compliance with EU legislation. Russia could shift responsibility for gas transportation from Turkey to the European market onto the purchasers, who would need to request transportation through the Trans-Adriatic Pipeline (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 receive a similar exemption from the EU is not clear. If not, this would reduce Turkey's chance of growing as a transit hub at the crossroads of the Middle East, the Caspian Sea, and Europe[29] unless a new pipeline connection between Turkey and Europe is built when there is a need for transiting additional volumes of gas from the potential sources available. On the other hand, Turkey may gain from TurkStream if it manages to correctly calculate its negotiating power with Moscow and gain strategic advantage for the long-run, rather than short-term benefits such as a price discount. Turkey could achieve the goal of not merely being a strategic corridor but also a physical gas trading centre, the first and only one in the region where Russian gas will be priced at the Turkey–Greece exit point and exported on to Greece, Bulgaria, and other European countries.[30] This would make possible gas-to-gas pricing in Turkey's new sales and purchase contracts with its suppliers when they come up for renegotiation, significantly affecting gas prices for Turkey. It could also turn Turkey into both a physical and virtual gas trade hub, a long-planned Turkish goal. However, it is subject to Ankara's ability to gain negotiating power vis-a-vis Russia, which can be achieved by diversification of supply sources, an important part of Ankara's current energy policy.

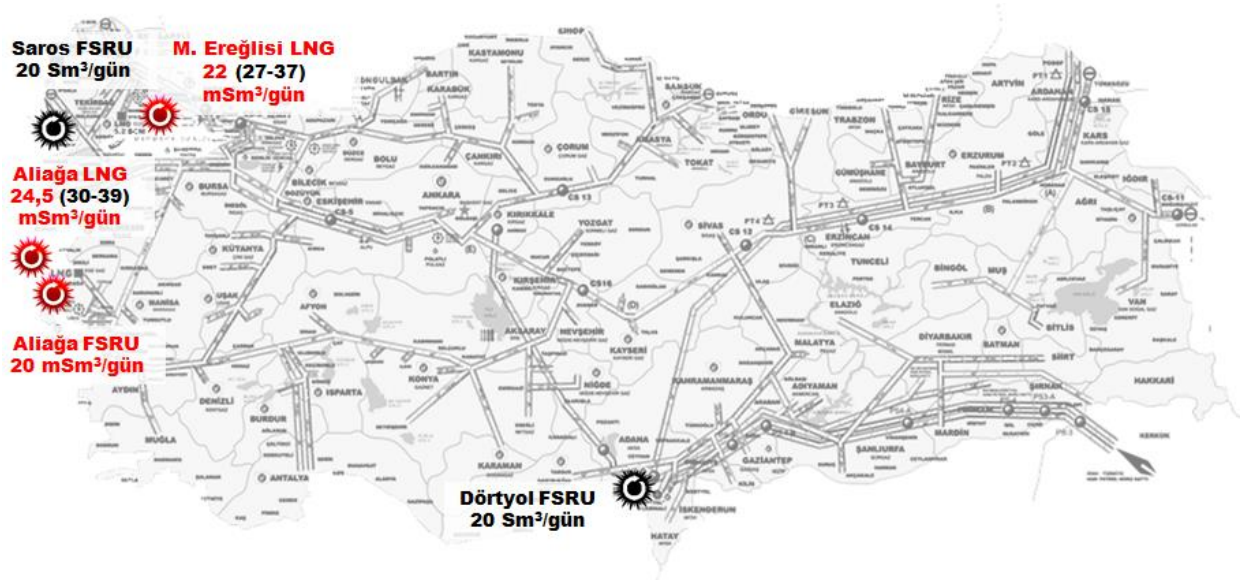
6. Extension of LNG receiving terminals, FSRU and storage capacity

Within the policy of supply source diversification, Turkey is increasing its LNG receiving terminal capacity, building 3 new FSRUs and increasing the capacity of its two existing storage facilities. The capacity of the BOTAŞ-owned Marmara Eriglisi LNG terminal will be increased from the current 22 mcm/d to 37 mcm/d in 2018, while the Egegaz-owned Aliaga LNG terminal's capacity will be increased from 24.5 mcm/d to 39 mcm/d in 2021. A new Neptune Aliaga FSRU was built in 2016 in Izmir and added 20 mcm/d capacity to the entry point. Another two new FSRU facilities, Saros on the north of the Gallipoli peninsula and Dörtyol FSRU in the southern province of Hatay, are expected to come online early in 2018 with a combined total 40 mcm/d of capacity (20 mcm/d each) (Map 3). The capacities of the two existing Marmara and Tuzgölu storage facilities will also be expanded from the current 38 mcm/d to 155 mcm/d by 2021, which will allow storage of gas during the low demand period and selling it on the domestic market when demand surges in winter time. This will also allow Turkey to import extra

[29] Austvik, O.G, Rzayeva, G. "Turkey in the Geopolitics of Natural Gas", Harvard Kennedy School, Mossavar-Rahmani Center, September 2016, https://www.hks.harvard.edu/sites/default/files/centers/mrcbg/files/66_final.pdf.
[30] Dastan, S.A., "Negotiation of a transboundary natural gas pipeline: An analytical contribution for the discussions on Turkish Stream", Energy Policy.

volumes of gas when prices are lowest and re-sell them when prices surge during winter. As a result, by 2021 total Turkish entry point send-out capacity including pipeline gas, LNG/FSRU, and storage will almost double from the current 258.18 mcm/d to 473.48 mcm/d (Table 4).

Map 3: Entry points of the LNG terminals and their capacity, mcm/day



Source: BOTAŞ.

Table 4: Total entry point sendout and storage capacity, mcm/d

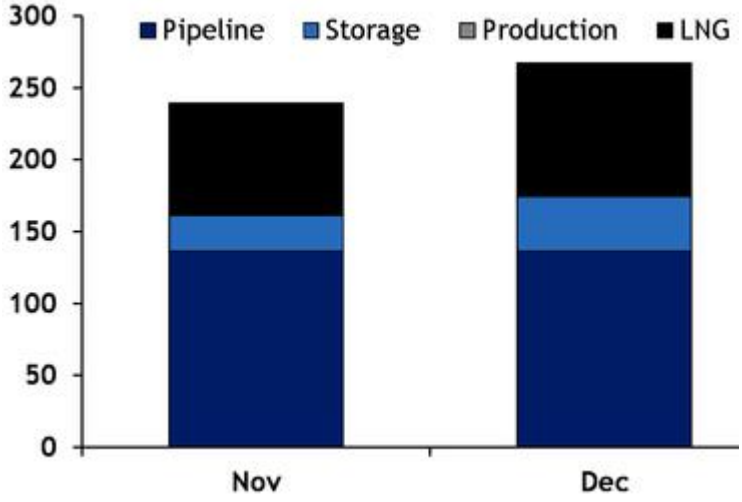
ENTRY POINTS	2017	2018	2019	2020	2021	2022	2023
Malkoçlar-Balkan	51.4	51.4	51.4	14.7	14.7	14.7	14.7
Durusu-Blue Stream	48	48	48	48	48	48	48
Gürbulak-Iran	28.5	28.5	28.5	28.5	28.5	28.5	28.5
Türkgözü-Shahdeniz	19	19	19	19	19	19	19
Eskişehir-Tanap	0	**5.7**	**11.3**	**14**	**16.4**	16.4	16.4
Trakya-Tanap	0	0	0	0	**8.2**	8.2	8.2
Kıyıköy-TurkStream	0	0	0	**46.9**	46.9	46.9	46.9
M. Ereğlisi LNG	22	**37**	37	37	37	37	37
Aliağa LNG	24.5	30.9	30.9	30.9	**39**	39	39
Aliağa FSRU	**20**	**14.1**	14.1	14.1	**20**	20	20
Saros FSRU	0	**20**	20	20	20	20	20

Dörtyol FSRU	0	**20**	20	20	20	20	20
Akçakoca-TP	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Gelibolu-Marsa	0.42	0.42	0.42	0.42	0.42	0.42	0.42
K. Marmara Storage	25	25	25	**50**	**75**	75	75
Tuzgölü Storage	13	**20**	20	**30**	**80**	80	80
TOTAL	**252.18**	**320.38**	**325.98**	**373.88**	**473.48**	**473.48**	**473.48**

Source: BOTAŞ.

As discussed above, to eliminate the 60 mcm/d gap in the daily supply capacity during peak demand, three FSRUs with a combined total capacity of 60 mcm/d are under construction and will fully close the supply gap and help BOTAŞ to avert supply cuts in future. By increasing LNG terminal capacity, Turkey will also be able to increase spot LNG imports when needed. In 2016, Turkey imported 7.6 bcm/year of LNG, including included 2.1 bcm of spot LNG (4.6% of total imports).[31] The government's position is that there is a glut of LNG in the world and Turkey has to take advantage of the availability, flexibility, and low price of LNG as a result of oversupply. Furthermore, as there are constraints on the transportation of large volumes of gas from the eastern part of Turkey to the most intense natural gas consuming region in the west, it is more convenient to import gas in the form of LNG to the Izmir area, in the north-west of Turkey. In the short-run, by the end of December 2017, the country's LNG regasification capacity will have increased to 107 mcm/d from the current 70 mcm/d (Figure 3).

Figure 3: Expected maximum send out capacity in 2017, mcm/d



Source: Argus.

Another major reason why Turkey is expanding the capacity of its LNG facilities is the issue of supply security, especially in the wake of the crisis that followed the shooting down of a Russian Sukhoi Su-24 aircraft in November 2015. The Turkish government carried out a stress test to determine whether, and for how long, Turkey would be able to survive without Russian gas in the event of a cut-off. The

[31] EMRA Annual Report 2016.

conclusions of the stress test led the Turkish government to decide to increase LNG receiving capacity to a level that would be able to fully replace Russian gas supplies when and if needed. Consequently, depending on Turkey–Russia diplomatic relations, more FSRU terminals might come online in Turkey in the future. However, it is most likely that even serious political tension between the two countries will not affect Russian gas supplies to Turkey, as the Su-24 crisis showed, because of the deep interdependence of the two countries in gas imports/exports.

LNG and pipeline gas prices in Turkey During cold months, BOTAŞ imports more spot LNG and seeks to purchase gas from Turkish private companies that could have stocks at the Silivri storage facility to sell during the heating season. The choice of the company depends on the competitiveness of the LNG cargoes versus pipeline supplies. The LNG price for December 2017 for Turkey is assessed by Argus at $8.9/Mmbtu,[32] significantly above the pipeline gas price, and BOTAŞ is increasing imports from its pipeline suppliers where infrastructure capacity allows and offsetting this by increasing the number of LNG cargoes when increasing pipeline imports is not possible. It appears that the LNG price for Turkey will remain high and this will motivate suppliers to send more cargoes to this premium market. However, seeking to import such expensive gas is a true impediment for private companies competing with BOTAŞ's gas price in the domestic market. Because the BOTAŞ gas price to eligible customers is subsidized by the government, private companies have to sell the gas at a discounted price to be competitive. They were able to sell gas at a profit before the depreciation of the Turkish lira against the dollar, but at the moment, with the current controlled prices, it is almost impossible to sell gas with an acceptable margin on the domestic market. This is why the government, through BOTAŞ, initiated a scheme of support to private FSRU companies and guaranteed to lift gas at an agreed price and amount on a long-term basis. The Turkish government gives a purchase guarantee of LNG for a 10-year period at a price which gives the importers a small margin, and given the higher price of imported LNG, the government also subsidizes the BOTAŞ LNG sales in the domestic market.

More LNG receiving facilities including FSRUs will allow more private companies to import gas from various sources and bring extra gas volumes to Turkey. To comply with *NGML 4646*, the backbone of Turkish gas market regulation, private companies are not allowed to conclude contracts with and import gas from countries that have an active supply agreement with BOTAŞ. However, they are allowed to import LNG from those same countries. This will foster competition in the domestic market and make import prices as well as the domestic balancing price more competitive, if and when the NGML is fully implemented. The parliament has yet to decide when the market liberalization process in accordance with the proposed legislation will be introduced.

Turkey is emerging as a competitive LNG market with underutilized regasification capacity for the current and potential LNG suppliers. The higher LNG price in the Turkish market is encouraging countries such as Qatar to enter the market with a longer-term perspective. Qatargas has signed a three-year sales and purchase agreement with BOTAŞ to deliver 1.5 mtpa of LNG,[33] and it is expected that the contract will be extended. Apart from commercial reasons, the deal with Qatar could also be deemed to be a demonstration of friendly diplomatic relations between Doha and Ankara, as Qatar is the only country in the Middle East which is aligned with Turkish political interests in Syria and Iraq, and Turkey is opposed to the sanctions imposed by Saudi Arabia against Qatar.

Storage. As shown in Table 5, the Turkish government is planning to more than triple Turkey's underground storage capacity at its two facilities at North Marmara-Değirmenköy in Silivri and Tuzgölü from the current 3.09 bcm to 10 bcm by 2023. The injection capacity of the Turk Petrollari (TP)-owned North Marmara-Değirmenköy storage will be increased from the current 16 mcm/d to 45 mcm/d in 2020, while at the BOTAŞ-owned Tuzgölü salt cavern storage facility, 150 km south-east of Ankara, injection capacity will be increased from 15 mcm/d to 60 mcm/d in 2018.

[32] Argus LNG Daily, 14 November 2017.
[33] Qatargas to sell annual 1.5 mln tonnes of LNG to Turkey's Botas, Reuters.com, https://af.reuters.com/article/commoditiesNews/idAFL5N1M11CL.

The increase in gas storage capacity is part of the MENR objectives to increase the country's downstream infrastructure capacity to manage demand peaks and safely operate the natural gas transmission system. Gas storage in Turkey is needed for three main reasons: a) to deal with seasonal balancing, peak shaving and supply shortage;[34] b) to store extra gas when prices are lowest and sell it when the price rises as demand surges; and c) in the future to export surplus gas when available. The country's natural gas system does not yet have sufficient storage capacity and the flexibility needed to turn the market into a gas trading centre but in the future the Energy Market Operations Company (EPIAŞ), which started with electricity trading, will also trade gas on a day- and month-ahead basis. By setting up EPIAŞ, Turkey is planning to establish a gas exchange as it successfully did with electricity. The market is expected to go live on 1 April, 2018.

Table 5: Storage exit points and capacity

		2017	2018	2019	2020	2021	2022	2023
N.Marmara-Değirmenköy	Storage (bcm)	2.84	2.84	2.84	2.84	3.34	3.84	4.6
	Injection (mcm/d)	16	16	16	45	45	45	45
Tuzgölü (Salt Lake)	Storage (bcm)	0.25	0.55	0.55	0.85	2.2	3.4	5.4
	Injection (mcm/d)	15	30	30	30	60	60	60
Total Storage Capacity	Storage (bcm)	3.09	3.39	3.39	3.69	5.54	7.24	10
	Injection (mcm/d)	31	46	46	75	105	105	105

Source: BOTAŞ.

7. Conclusions

Investment. The current Turkish Long-Term Import Contracts were signed in an era of a seller's market, with terms and conditions which benefited sellers rather than buyers due to the tight market. However, in the 2020s, when Turkey's LTCs will expire, BOTAŞ and eight private importers will be in a position to negotiate better terms including pricing, ToP terms, and other conditions because of the glut of natural gas surrounding Turkey. To take maximum advantage of this situation, Turkey is investing billions of dollars in the expansion of its gas infrastructure capacity to balance demand fluctuations, diversify supply sources, lessen its dependence on Russia, and become an important natural gas exporter in the next ten years, with the aim of increasing its political weight in the region. As of today, the country's maximum daily entry point send-out capacity during the peak season is 260 mcm/d, whereas the infrastructure capacity is being almost doubled to more than 473 mcm/d. Given that the country's gas demand is projected to be around 55–56 bcm by 2025,[35] around 300 mcm/d of spare capacity will remain for export.

Market Reform. However, the key to achieving the government's goals are market reforms and the liberalization of the gas market in compliance with the NGML, thus freeing the market from controlled prices and subsidization, and allowing further imports and transportation. To enable this, in March 2015 the new energy market operating company EPIAŞ (wholesale electricity exchange) was created and, under Law No. 6446, TEAŞ PMUM was incorporated into EPIAŞ.[36] Currently, the government is creating a wholesale spot market within EPIAŞ that will enable shippers to trade gas on a daily basis.

[34] Energy Policies of IEA Countries: Turkey. 2016 Review, IEA, https://www.iea.org/publications/freepublications/publication/EnergyPoliciesofIEACountriesTurkey.pdf.
[35] Rzayeva, G., Turkey's gas demand decline: Reasons and consequesnces, p.16, OIES, April 2017 https://www.oxfordenergy.org/wpcms/wp-content/uploads/2017/04/Turkeys-gas-demand-decline-reasons-and-consequences-OIES-Energy-Insight.pdf.
[36] OIES, April 2017.

In the meantime, BOTAŞ will also enter the market and fulfill its system balancing needs. Together with the Energy Market Regulation Authority (EMRA) and BOTAŞ, EPIAŞ has created new market rules called Market Operation Procedures and Principles (PUE)[37] and is currently trying to make BOTAŞ's network code compatible with this new market design. The market is expected to go live on 1 April, 2018.

Contract Pricing. The biggest contribution of this new market design could be pricing – the ability of EPIAŞ to price gas in international gas contracts with gas-to-gas indexation rather than fixed to oil and oil product prices vulnerable to international oil price fluctuations. Obviously, in order to incorporate the EPİAŞ price in long-term contracts there must be transparency, trust, liquidity, and a free market and it will take time to reach that point. Whether this initiative will be successful remains to be seen but clearly it is one of the targets the government wants to achieve. It is most likely that in the early stages it will serve as a balancing tool for the TSO and shippers before in the future potentially becoming a gas trading exchange.

New Supply Sources. Unlike the new sources of pipeline gas, additional LNG is available to Turkey quickly and flexibly, especially now that Turkey is expanding regasification capacity from the current 70 mcm/d to 136 mcm/d by 2021. Storage capacity expansion will allow more LNG to be stored as gas during the low seasonal demand period. However, the main issue with LNG imports is the price. The spot LNG price for Turkey is 20-25% higher than pipeline gas prices. Private LNG importers cannot afford to buy expensive LNG because they have to compete with BOTAŞ in the domestic market where BOTAŞ sells its gas at subsidized prices, whereas the private companies do not have this advantage. Private importers have been able to compete in the past but it has become increasingly difficult, especially after the depreciation of Turkish Lira against the US dollar.

With the construction of two new international pipelines – TANAP and TurkStream - Turkey will have spare capacity to import extra gas from various new sources and re-export gas in the future. With TurkStream this will depend on whether the Turkish importers will be able to achieve the removal of the destination clause in the contracts with Gazprom when negotiating extension of the contracts. Extra volumes of gas from Azerbaijan, beyond the Shah Deniz 2 field, may be available in second half of the 2020s when the second stage of the Absheron and Umid/Babek fields come online. However, for the short- and mid-run, it seems that there will be no gas imports into Turkey from northern Iraq and the EastMed region, which are potential new sources, given the political, geopolitical, security and commercial constraints.

[37] Piyasa İşletim Usul ve Esasları