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The Oil and Gas Policy: How/Why the Market-Structure Influences their Politicization

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Petrol ve Gaz Politikası:
Piyasa Yapısı Politikleşmeyi Neden/Nasıl Etkilemektedir?

Abstract

Energy trends and international politics are fundamentely interconnected, hence energy security is an integral part of the foreign and national security policies. According to International Energy Agency, fossil fuels –oil, natural gas, and coal- provided for over 85% of total primary energy consumption of world in 2013. On the other hand, this study just compares oil and natural gas policy because of coal carries little geopolitical sensivity, despite its widespread use and critical importance in the global economy. Natural gas has become an increasingly valuable resource. For this reason, in this study will answer the question, *"why natural gas is more political fuel than oil?"*

Key worlds: Oil, natural gas, energy security, pipelines, LNG.

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Introduction: Is it "*Golden Age*" of natural gas?

Energy is one of the most central issues in contemporary global politics. It is a frequently issue in the heart of global trade, because energy prices are key factors in the difference between growth and prosperity or shortage and recession. Understanding energy security must begin with the main sources of energy. In the twenty-first century, energy security has assumed newfound geopolitical importance. This study compares oil and natural gas policy. Coal also carries little geopolitical sensivity, despite its widespread use and critical place in the global economy. On the other hand, oil and gas move across borders in large quantities. Securing reliable and affordable oil and gas are key national interest of the state, because of the tremendeous volume of oil and gas that must be transported across international borders to reach their end-user, they become direct concerns for policymakers.

The twenty-first century is the era of natural gas. In the nineteenth century, coal was the dominant fuel source and in the twentieth century, it was oil. In the twenty-first century, enormous new natural gas sources have been discovered and produced. These new discoveries are vast in quantity and varied in location, with new parts of the globe becoming natural gas producers, and new volumes far exceeding the rise in global demand for natural gas. In the long term, the share of natural gas in the global energy mix increases, pushing the share of coal into decline and overtaking it.

Natural gas consumption is expected to continue to grow significantly in coming decades due to its relatively low environmental impact, substantial new discoveries have led to lower prices and new access to supplies in many markets, and the reduced appeal for nuclear energy after the Fukushima disaster. Of course nowadays, some important changes occur in natural gas market. In the future, natural gas market is expected to be more flexible and more transparent. Consequently, with the rise in consumption and trade of natural gas, there will be increased opportunity for the use of supply stability as a foreign policy tool. Considering all this, in this study will be seek to answer the following questions:

i. Why natural gas is more political fuel than oil?

ii. Are gas importers dependent on the suppliers?

iii. Does interdependency develop between gas importers and gas suppliers?

iv. How does the natural gas supply impact the political relationship between the parts?

v. How does the potential availability of LNG impact the nature of existing gas supply relationships?

vi. How does supply diversification policy affect source dependency?

1. Main differences between oil and natural gas market

Energy and politics are inseparable (Shaffer, 2009: p. 4). Energy trends and international politics are innately interconnected, hence energy security is an integral part

of the foreign and national security policy of states. This study examines differences betwen the dynamics of natural gas and oil supply. On the other hand, the search to answer this difference on how effectively producing states use energy to achieve political goals or weaken an opponent? Natural gas market is tighter than oil market, so a cut-off in natural gas has devastating impact than a cut-off in oil supply. Oil is traded on international markets. In contrast, natural gas market is based on bilateral agreements between the supplier and the consumer. Also, supply alternatives in natural gas market is limited to transportation. Cut-off in natural gas supplies can cripple an economy, lead to deaths of citizens, and create domestic instability if dependent state can not find an alternative source.

The procurement of reliable and affordable natural gas supply requires the intervention of foreign policymakers for one or more reasons. Firstly, gas trade requires a much higher degree of interconnectedness between supplier and consumer than oil trade. Because of its low energy density, gas must be transported via pipeline to be cost-efficient, although in recent years, liquefied gas (LNG) have introduced another mode of transportation. Pipelines impose sever limitations on the trade distances in gas, and thus gas markets created by pipeline tend to be regional. Construction of a transnational pipeline requires enormous insfrastructure investment, a stable political climate, and often the support for transit states. Due to the challanges of pipeline construction, the governments of supply and demand countries must be involved from the outset. On the other hand, pipelines, tanker ships, and even railroads can transport oil economically. Furthermore, oil pipelines do not require the expensive compressor stations of gas pipelines, greatly reducing their cost to build and operate.

Secondly, natural gas is not a globally traded commodity and does not have a global price, unlike oil. Because transport is mostly economic over short distances. Gas is traded regionally, and it is priced in the context of the neighborhood where it is sold. The wide range of gas prices creates an incentive for foreign policy makers to seek preferential prices.

Thirdly, natural gas storage is more difficult and expensive than oil. The inefficiency of relying on gas reserves puts a premium on ensuring a stable, continuous gas supply. This further incentivizes policy makers to intervene and to ensure these gas imports flowing smoothly.

Fourth, the rates of consumption in domestic market make natural gas more political. If the export possibilty low, source countries prefer to use gas in domestic market to strenghten stability of the regime. For example Iran's impact on world natural gas market is small in-spite of second big gas reserves. Iran consumes gas in domestic market much below the world price due to sanctions and rentier regime (Tagliapietra, 2014: p. 12-15). In these countries, the gas market is controlled in relatively by a few states. Being controlled by a few states will strenghten the dependence and sensitivity in gas supply.

When discussing security of natural gas supply, Stern's model will will be used. According to this model, security of supply will be discussed mainly in three-dimensonal: Source, infrastructure and transit dependency. Structural risks such as natural disaster, politic disorganisation, terrorism, civil war and accidents are surely considered for the analysis (Fattouh, 2007: p. 12).

Most important disadvantage for natural gas is the higher costs of transportation and storage than oil and coal with current technology. Energy security for oil and natural gas have got different accuracy since natural gas market more strict structure than oil market (Haghighi, 2007: p. 12-15). Pipelines, which are main transportation method of natural gas, make necessary long-term contract due to high investment cost. On the contrary oil market, there is a direct connection between producer and consumer for natural gas. The price is determined by contracts. While the price is indexed to oil price on some contracts, sometimes it is determined as fully independent from oil. The contracts, named mostly as "*take or pay*", are made for building new pipelines. At the most basic level, take-or-pay contracts require the buyer either to purchase and take delivery of certain quantities of gas, or to pay for the gas regardless of whether it takes delivery.

According to IEA, there are two main reasons that natural gas market has got more strict structure than crude oil (IEA, 2012: p. 6). One of them is that transportation cost of natural gas is higher than oil. Therefore, effect of interruption on a region is relatively weak on other regions, as gas market offers regional view as a result of strict distribution system than oil. Moreover, natural gas market is clearer for geographical effects. Consumption of natural gas depends on countries' seasonal climate (hot/cold). These differences between oil and natural gas market reflect on their powers as political factor. While is price impact on energy crisis originating from oil, main problem for natural gas is when flow is interrupted. Generally, there is an important difference between natural gas and oil in terms of energy security which is summarised as having sufficient energy supply by affordable price. Gas on the amount which is demanded by natural gas agreement is pledged as it will be offered by affordable price. On the other hand, oil security means that safety and sufficient supply is provided by at affordable price.

2. Interconnectedness between supplier and consumer

Gas requires a pipeline network for delivery and enough population outside supply area. The trade is stil centered in three distinct regional gas markets — North America, Europe (including Russia and North Africa) and Asia with links to the Persian Gulf. Each has a different market structure result of market maturity, the sources of supply, the dependence on imports and other geographical and political factors. The other handicap in natural gas is that approximately half of the world's energy reserves is in control of Russia and Iran.

58% of the interregional natural gas trade is currently conducted through pipelines. This figure rises to 68% when intraregional trade, in relatively shorter distances, taken into account. Even though new pipelines will be put in operation, it is expected that the share of the gas trade as LNG would reach 50% by 2035 (Demirtas, 2013: p. 7).

In comparison, natural gas markets are smaller and less mature, and the physical characteristics of natural gas constrain transportation options. Unlike oil, transportation costs — whether for pipeline gas or LNG — constitute a significant fraction of the total delivered cost of natural gas. Also, because of the relative immaturity of natural gas markets, compared to oil, and the very high upfront capital costs, long-term contracts have been necessary to underwrite the cost of infrastructure development and to ensure a market for the supplier.

Pipelines may have to cross many countries. The number of parties involved in a multi-national pipeline project can slow project development and political instability in host or transit nations raises security of supply issues. On the other hand, cross-border pipelines must invariably comply with multiple and dissimilar legal and regulatory regimes, further complicating pipeline construction and operations. Finally, the strong mutual interests of buyers and sellers in cross-border pipeline projects are not fully shared by transit nations, such as Ukraine for Russian supply to Western Europe.

Pipelines have a distinct economic advantage over LNG for shorter distances but LNG gains advantage over longer distances and is a key of a global gas market. LNG offers the potential for a greater diversity of suppliers and markets, both key ingredients for increased reliability and energy security. LNG is generally contracted between a single buyer and seller, simplifying negotiations and transport routes. However, the investment required for capacity expansions of each link in the LNG supply chain is considerable; since minimizing investment risk is a fundamental driver for developing global LNG markets, longer-term contracts are favored.

Most gas production fields are far away from markets. Transporting gas from production to the end user requires high investments in either pipeline systems or, in the case of LNG, in liquefaction, shipping and regasification. This is more expensive than other commodities (International Gas Union [IGU], 2012: p. 20-21). Ensuring security of supply in the pipeline systems, input and output have to be balanced continuously. In the gas markets this is supported by linepack, which can absorb some short-term fluctuations.

Ediger (2007: p. 33), emphasized that diversification of source on natural gas is pretty difficult, pointed out that passing natural gas from oil will be more difficult than passing oil from coal:

"*Disorders are the most important problems for natural gas to distribute production and consumption centers as geographically. Namely, consumption and production geographies are different from each other. Major producers are not consumers and major consumers are not producers. Moreover, reserve concentration on natural gas is worse than oil. While share of two countries (Saudi Arabia and Iran) which have got greatest reserve is 33,5% for crude on world it is more than 50% for natural gas (Russian Federation and Iran). Therefore, monopolization on natural gas offers a more dangerous situation than oil by means of reserve concentration.*"

Decision is substantially made by political evaluation to choose the route for importation of natural gas; hence trade of natural gas has got critical risks. These projects can include sunk cost, as investors are required to wait for returns on their investments for long time. After starting infrastructure work, it is difficult for investors gain speed via host state. Because stability and tendency of regime are main determiner to decide what direction will be made for natural gas project (Shaffer, 2009: p. 2). Furthermore, it is risky and high cost to change transfer route after it is determined at the first time. LNG can be an important alternative of natural gas pipelines when the cost is brought down by development of technology. States get involved directly in issues related to energy is seen as economical, political and strategic vehicle by in the event has got vital importance for national security. Natural gas flow is defenceless against state's intervention. Because all sides are states in the market. Natural gas pipelines or LNG's infrastructure can not be

made before agreement among receiver, seller and transfer countries. In most cases, states are formal sides of the agreements.

Energy supply is frequently referred to in both academic publications and policy circles as a ''*weapon*'' and supply disruptions as ''*threats*'' or ''*attacks*'' on a state (Shaffer, 2013: p. 1). Foreign and public policy makers engaged in discussions on energy security policies generally focus on access to oil. However, due to prevailing conditions in the international oil market, oil supply can rarely be wielded as a foreign policy tool, especially by producers. In contrast, natural gas is supplied chiefly pipelines and the framework of long-term contracts, creating direct, long-term linkages and permanent infrastructure between sides. Even natural gas supplied in LNG tankers is traded predominately in the framework of longterm contracts, and unlike the oil tanker business, the LNG transport vessel market is not very flexible. In addition, LNG supply infrastructure is not standardized like that of oil, further barring market flexibility. The long-term supply relationships and permanent infrastructure involved in natural gas supply provide much greater opportunity for politics to come into play than in oil trade (Shaffer, 2013: p. 1-2).

There is addition and mostly mutually dependence as a result of more powerful and long term contarcts for natural gas trade. The relation is formed on diversification of each sides. In this sense, relations between the EU and Russia, within mutual dependency, are important example on natural gas field. The EU is the largest natural gas market in the world and it is anticipated to preserve its position in the medium run (IEA, 2014). There are important changes in the natural gas industry likely to arise out of shale gas, and it is still important for the EU to safeguard gas supply under current conditions. In 2013, 43% of the energy requirement of the EU was fulfilled by Russia and 27% of this was consisting of natural gas. In 2013, Russia exported 80% of the natural gas it produces to the EU countries, and today Estonia, Latvia and Lithuania meet their electricity requirement from Russia (European Commission, 2014: p. 3). Six members of the European Union are fully dependent on Russia as far as natural gas supply is concerned, and this intensifies the EU's sensitivity to supply shocks (European Commission, 2014). Actually, the EU and Russia are mutually dependent upon one another for natural gas. The EU meets 1/3 of its gas need from Russia, which exports 61.7% of its export volume to the European countries (De Micco, 2014: p. 4). For this reason, the dependency relationship of the EU and Russia should be handled from both sides. This is problematic specifically because of the importance that Russia has on the EU energy security. Gas in particular is a difficult issue, as Russia controls a vast amount of pipelines going to Europe that not just carry Russian gas, but also Caspian gas to the EU.

The growth in unconventional gas production across the world will not only lead to more gas being available, but resources will also be spread more evenly across the globe. This will have a positive impact on security of supply. The evolution of a globalized commodity market, due to the increase of LNG trade, may be expected to reduce geopolitical tensions, by allowing diversification of supply and demand. Nevertheless, LNG trade expansion and more generally gas chain development need to be supported by fair prices, and by relevant and reliable risk sharing mechanisms between resource holders, developers, financers and consumers, in order to provide frameworks and conditions for a sustainable development (IGU, 2015: p. 21).

3. Regional market structure and pricing

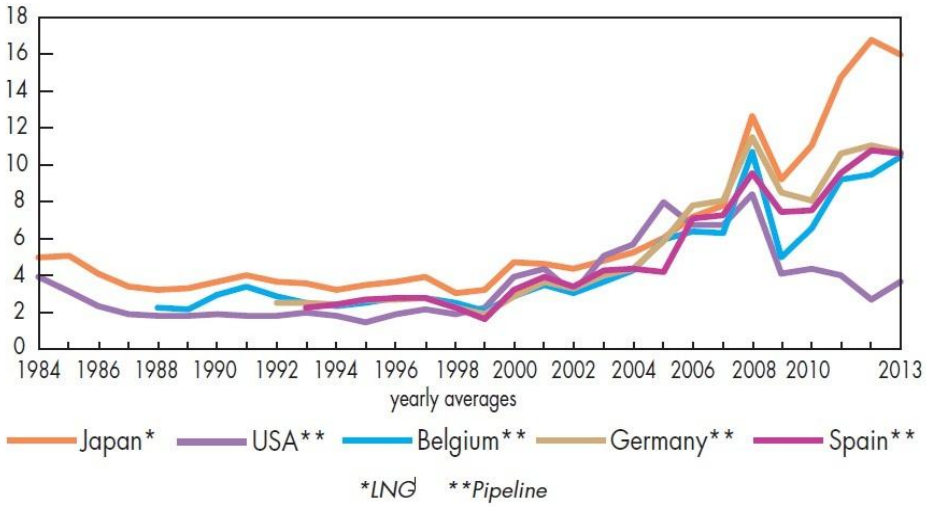
Natural gas market offers regional feature structurally, and this affects price mechanism also. Natural gas, unlike oil which is a global commodity, is a regional with regional buyers and sellers exerting more influence (Ratner et al, 2012: p. 1). This arises simply because gas suffers from the "*tyranny of distance*" which means, because it is a high volume low value commodity, it is expensive to transport. Admittedly, in recent years, changes to the LNG market which will be outlined below have given rise to expectations that gas was moving from regional to more global markets but this trend may well have been halted by the sudden development of unconventional gas (Stevens, 2010: p. 1). For gas prices to converge in regional markets, it can be argued that liquidity and transparency in those markets is a necessary condition.

Price of natural gas differs in both regions. There are mainly three pricing models in gas market. First of them is a spot price that controls North American gas markets and commodity price said as "*Hub*" is determined on gas trade and distribution centers by means of commercialization of gas on fully competitive environment (competition of gas with gas), second is "*long-term contract*" model that is used in European market, involves terms which secure producer and consumer against sudden market differentiations such as "*take or pay*", and third is Japanese Crude Cocktail model which gas price is directly connected to oil price on long term LNG contracts which transportation/ freight cost is reflected (Özdemir, 2015: p. 1).

The gas trade, unlike oil, is mostly based on long-term contracts. The reason lies in the cost structure of gas projects and their specificity. Normally, producing gas and getting it to market requires very big projects. Such projects tend to be characterized by very high fixed costs and relatively low variable costs. However, because of the transport constraints, gas projects are highly specific. The end of a pipeline is the end of a pipeline. If nothing emerges, then finding alternative is very difficult simply in terms of the logistics let alone in terms of commercial issues. In similar vein LNG projects must have access to regasification plants and until recently here has been very limited if any flexibility in the trade. Thus unlike the oil trade which has much greater flexibility, gas trade depends upon long terms contracts. Loss of supply or loss of customers presents a very serious threat to any gas project.

Importantly, these regional markets set natural gas prices in different ways. In general, the U.S. has gas-on-gas competition and open access to pipeline transportation, and manages risk through spot and derivatives markets. The European market relies more heavily on long-term contracts (LTCs) with price terms based on a mix of competing fuels, e.g., fuel oil, and pipeline access is restricted. Asia uses crude oil as a benchmark for natural gas prices and favors long-term contracts; this structure has kept LNG prices in Europe and Asia high relative to other regions. These market features, along with the availability of domestic natural gas resources and geopolitical interests, establish the boundary conditions for the development of global natural gas markets, at the same time that significant price disparities between regions create greater interest in such a market.

Figure-1: Natural gas import prices in USD/MBtu



Source: IEA, 2014: p. 41.

This regionalized and varied structure of natural gas markets stands in contrast to the global oil market, and it is instructive to understand the fundamentals of the difference between oil and natural gas markets. The physical characteristics of oil - a very high energy density at normal conditions of temperature and pressure - make it readily transportable over long distances, by a variety of means, at moderate cost. This has allowed the development over time of a global oil market, where multiple supply sources serve multiple markets at transparent spot prices, with price differences largely attributed to transportation costs and oil quality. Notwithstanding dependence on imports, the diversity and robustness of this market place adds significantly to security of supply for consumers and producers.

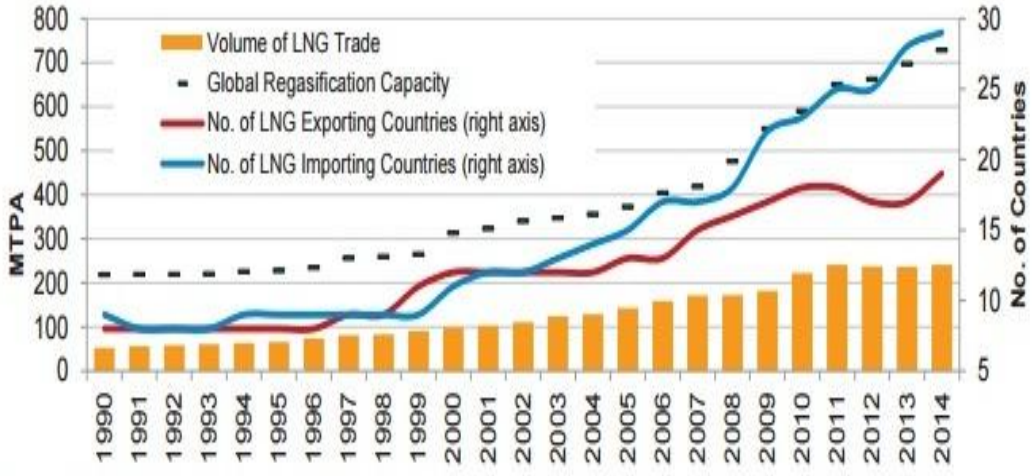
LTCs traditionally also peg the gas price to a basket of substitute fuels, notably oil. While spot markets are gaining importance, the prevailing gas pricing model in Europe essentially reflects oil price movements rather than actual demand and supply patterns (Goldthau, October 23, 2013: p. 7). There is a dynamic price relationship between oil and gas. Currently, crude oil prices have a great impact in the fuel industry. The correlation between crude oil and natural gas is necessary because they are not only complementary combustibles in consumption, but also rivals, in fuel production. Nevertheless, there are records of periods when the two combustibles presented separated evolutions. During this time interval, the natural gas prices raised above the crude oil prices. This is why analyses and forecasts of oil and gas became necessary.

Economic evolution of oil and gas markets has greatly depended on demand and supply. When increase of the crude oil price consumers to prefer natural gas over petroleum, which results in increasing the natural gas demand and, implicitly, prices. Oil and gas are competitive substitutes, especially in the electricity and industrial fields. The hub based gas prices have a high volatility and oil-related gas prices have a lower

volatility. In turn, the volatility of oil price-linked gas prices is lower than the volatility of oil prices. This is caused by the "time lags" in the oil-linked gas prices, where the oil prices used for the calculation of the gas prices are rolling averages of time periods of several months or quarters. The higher volatility level is likely to be related to the higher cost of storage and the need for a constant volume equilibrium. The relative dimension of each market has explained this asymmetric relationship between oil and gas price evolution. The estimation of the price of the former occurs at a global scale, while the estimation of the price of the later depends on regions. This means that the gas market is considerably smaller than the oil global market.

A global gas market is gradually in the stage of transformation that it partakes oil market. After 2008, as a result of world economic crisis with the rise of LNG trade, global gas market has became more possible. When developments of LNG trade have gained a global view the market has became much more liberal. The share of LNG have been gradually increased despite low transport costs in the regional market. Natural gas accounts for around 1/4 of global energy demand, of which 10% is supplied in the form of LNG. This compares to just 4% in 1990. LNG supply has grown faster than any other source of gas – at an average 7% per year since 2000 – and is poised to expand its share of the gas market to 2020 (IGU, 2015b: p. 6). However, despite the developments in the field of LNG, LTCs still hold their dominant position, which makes emergence of a global price difficult. Long-term contracts continued to drive the LNG market, accounting for 69% of global trade in 2014. A dynamic spot and short-term market covered a further 27% of total trade in 2014. Nearly 75% of these volumes were consumed in the Pacific Basin. While medium-term trade has grown in recent years, it remains a small component of global trade at 10 MT (4%) in 2014 (IGU, 2015-B: p. 15).

Figure-2: LNG Trade Volumes, 1990-2014



Source: IGU, 2015-B: p. 7.

Historically, the vast majority of LNG was traded under long-term, fixed destination contracts. In the last decade, however, the expiration of several long-term contracts, the growth of flexible destination supplies, the proliferation of portfolio players

and a range of other factors have led to the emergence of new contractual trade arrangements. A number of key factors have contributed to the rapid growth of non long-term trade in recent years (IGU, 2015b: p. 15):

- *The growth in LNG contracts with destination flexibility, mainly from the Atlantic Basin and Qatar, which has facilitated diversions to higher priced markets.*

- *The increase in the number of exporters and importers, has amplified the complexity of the trade and introduced new permutations and linkages between buyers and sellers. In 2014, 26 countries (including re-exporters) exported spot volumes to 28 end-markets. This compared to 6 spot exporters and 8 spot importers in 2000.*

- *The lack of domestic production or pipeline imports in Japan, South Korea and Taiwan, which has pushed these countries and others to rely on the spot market to cope with any sudden changes in demand like the Fukushima crisis.*

- *The surge in global regasification capacity.*

- *The large increase in demand in Asia and in emerging markets such as Southeast Asia and Latin America, which accelerated tightness in the LNG market.*

- *The decline in competitiveness of LNG relative to coal (chiefly in Europe) and shale gas (North America) that has freed up volumes to be re-directed elsewhere.*

- *The large disparity between prices in different basins, which made arbitrage an important and lucrative monetisation strategy.*

- *The large growth in the LNG fleet, which has allowed the industry to sustain the long-haul parts of the spot market (chiefly the trade from the Atlantic to the Pacific).*

- *The 2015-2018 period will see the emergence of floating liquefaction (FLNG). Three projects totalling 6.8 MTPA were under construction as of the first quarter of 2015 and scheduled online before 2018. The technology, if proven economical and reliable, could have a transformative impact on the industry.*

The single largest entity impacting the world's oil supplies is the OPEC. Formation of an OPEC-like cartel in gas market on a regional scale is rather unlikely though. The Gas Exporting Countries Forum (GECF), which is far from being an OPEC-like formation, has no power to control natural gas prices and volumes. First, there is no single global gas market, as oil. The challenge of transporting gas efficiently means that there are multiple regional markets, which vary in demand and supply. This leads to tough competition for consumers, tearing the camp of suppliers apart. Second, must account for differences in policies of the gas suppliers. For example, most of them, including Russia, tend to export

pipeline gas under long-term contracts and thus are interested in sustaining year-round supplies at a preset price that is independent of subsequent changes in market conditions. In contrast, Qatar, the world's leading exporter of LNG, is interested in fast sales at spot prices, which vary along with the current market demand and are not fixed in the long term.

4. Relative importance of gas storage

Natural gas storage is more difficult and expensive than oil. Security of supply is also far more complex than in the case of oil. It has much less flexibility in terms of transport and trade. Also safety concerns and the integrity of gas grid means it is difficult and dangerous to turn gas supplies off and on (Stevens, 2010: p. 2). Storage plays a vital role in maintaining the reliability of supply needed to meet the demands of consumers. Natural gas can be stored for an indefinite period of time.[1] One of the major concern of gas suppliers is being able to attain this source of energy the entire year. This concern intensifies during more consuming seasons of the year, when the demand increases, resulting in lots of problems such as pressure depletion in the pipelines. One of the most effective policies to prevent pressure depletion is gas storage in warm seasons of the year when public demand is low. The exploration, production, and transportation of natural gas takes time, and the natural gas that reaches its destination is not always needed right away, so it is injected into underground. These storage facilities can be located near market centers that do not have a ready supply of locally produced natural gas.

Traditionally, natural gas has been a seasonal fuel. That is, demand for natural gas is usually higher during the winter, partly because it is used for heat in residential and commercial settings. Stored natural gas plays a vital role in ensuring that any excess supply delivered during the summer months is available to meet the increased demand of the winter months. However, with the recent trend towards natural gas fired electricity generation, demand for natural gas during the summer months is now increasing. Storage also serves as an insurance against any accidents, natural disasters, or other occurrences that may affect the production or delivery. Former US Senator Richard Lugar declared that, ''*Energy is a potent weapon and a cut off of gas or oil supplies in mid-winter could have as devastating an impact on a country's economy as a military attack.*'' (Shaffer, 2013: p. 1).

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[1] Generally, gas storage methods are categorized into two parts: surface and underground. Underground Gas Storage (UGS) consists of depleted oil & gas reservoir storage, Aquifer storage and salt cavern storage. Surface storage consists of Gas holder storage, Liquefied Natural Gas (LNG), Compressed Natural Gas (CNG) storage, Natural Gas Hydrate (NGH) storage, Absorbed Natural Gas (ANG) storage, Gas to Liquid (GTL) storage, Pressure Liquid Natural Gas (PLNG) Storage and pipeline capacity storage. Among the methods, LNG and depleted reservoir are commonly used for gas storage in high capacity. NGH is also a new technique that has been suggested for high capacity gas storage. See Khamehchi, et.al. 2013: p. 10.

Cut-off of natural gas supplies can cripple an economy, lead to deaths of citizens, and create domestic instability. In most states, energy policy is integrated into foreign policy making and institutions (Shaffer, 2013: p. 1).

Another important factor is energy security for storage. Consumption of natural gas changes seriously with seasonal, its storage is important in terms of getting suddenly demand increases or supply decreases. Moreover, it is not possible to find new supply source in short term when natural gas flow stop, strategic reserve is more important than oil. Agreements by a "*take or pay*" system affect this importance. If governments don't have a chance to storage surplus of natural gas, they have to pay for assuming amount though they do not use it.

Precautionary gas storage is used instead to manage the risk of supply disruptions, due to accidents or geopolitical reasons. The amount of storage devoted to the last purpose is also known as strategic storage and consists in gas stocks often managed under specific government rules.

Monopolization is another problem for energy markets. It treats energy security three stages: Production, transportation, and distribution. Especially, monopolization on natural gas energy value chain can be used as a vehicle in order to get political targets. Since natural gas agreements are long term (approximately 25-30 years) it is not possible to have an alternative easily. Especially, intensity of response from interruption is much higher if the state has not got infrastructure of LNG when flow is interrupted on natural gas trade made by pipeline. Increased use of natural gas in electricity generation presents some potential challenges. While coal can typically be stored on-site at power plants, natural gas must be delivered as it is used.

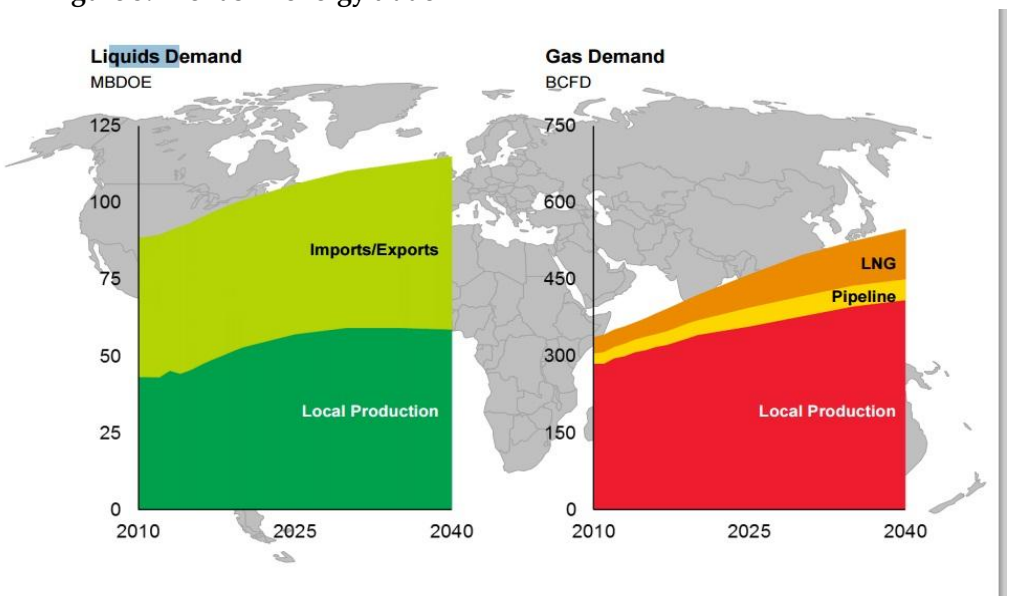
5. Domestic natural gas consumption's rates

Consumption rates in domestic market make natural gas much more politics. Low source countries prefer to use gas in domestic market for the stability of the regime. In this source countries, the gas market controls in relatively few states. Being controlled by a few states will strengthen the dependence and sensitivity in gas supply. It should be noted that the majority of natural gas supplies (approximately 70%) is consumed domestically(Shaffer, 2013: p. 3).

Another differences of natural gas from oil is that is only certain part operated at international trade by means of current reserves. The amount of gas, a matter of international trade, is less than ¼ of produced energy (IEA, 2010: p. 23). Its most important exemption is Russia, too. Russia exports s considerable amount of natural gas (IEA, 2010: p. 23). On the other hand, Iran which has vital natural gas reserves can be

considered as a sample for this issue as it consumes natural gas in their domestic market by making subsidized (IEA, 2013: p. 3).

Figure 3: Trends in energy trade



Source: ExxonMobil, 2015.

Coming in the first rank for its natural gas reserves, Iran comes in the third rank in production.[2] The share of Iran in the global natural gas trade is 1%, which is of no significance among the exporting countries (EIA, 2015). With 60% of share, natural gas dominates the primary energy demands (PED) in Iran. It is followed by other types of fossil fuels have relatively lower percentage levels (EIA, 2015). Iran is predominantly dependent on fossil fuels. 76% of is met from natural gas, while 18% of it is from oil and 6% from hydrocarbon resources (Business Monitor International, 2010: p. 13). Iran began to concentrate on natural gas consumption after the 1980s. Making a strategically-wise preference, Iran tended towards natural gas for the domestic consumption in order to lean on crude oil exportation, which is more convenient and profitable to transfer compared to natural gas (Tagliapietra, 2014: p. 9-10). As a result, Iran has been paradoxically a net gas importer since 1997 (2014: p. 12). Natural gas consumption of Iran is anticipated to increase by 7% for the next decade. To ensure a steady regime, Iran subsidised natural gas rates, and the reform process for reduction of subsidies over 10% in GDP started in 2010 (Greeley, 2014). All of these are amongst the obstacles that hinder natural gas export rate from gaining speed in the short and medium terms.

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[2] According to BP, Iran owns 18.2% of the proven natural gas reserves of the world; however reserves of Russian, which comes in the second rank, hold a share of 17.4%. See BP, 2015.

Conclusion

Natural gas is one of the most important energy sources in the world. By depletion of oil reserves in the world, it will emerge as the future energy source for human life. The consumption growth rate has been the fastest of all the fossil fuels in recent years. Gas has become an increasingly valuable resource. Gas is different from oil and coal. The different geopolitical ramifications of oil and gas dependency stem largely from the resoruces' different physical characteristics. For an equivalent volume, oil contains over one thousand times the energy of natural gas. Natural gas is a fossil fuel, though the global warming emissions from its combustion are much lower than those from coal or oil.

Natural gas consumption is expected to continue to grow significantly in the long term due to its relatively low environmental impact, ease of use, and an increase in the number of natural gas-fired power plants. Consequently, natural gas plays a larger role than the case just a few years ago. There will, however, be a big shift in the mix among those conventional fuels – toward natural gas. In the 2030s, oil, natural gas, and coal will be running a neck-and-neck race for market share. The IEA has called this era "*the golden age of natural gas*". Consumers are increasingly choosing natural gas for its versatility, efficiency and availability as well as its cleaner-burning properties.

The international natural gas trade is different from those in oil and coal. The commercial value of crude oil, which is directly linked to production and transport costs after oil market became global. Unlike oil, in natural gas there is no global market, because of its commercial value is indexed to transfer routes and methods. Natural gas is for the most part delivered by an expensive pipeline infrastructure, rather than by more malleable sea routes or rail lines. Pricing in world gas markets remains very fragmented, with prices driven more by local and regional factors than global dynamics. The global increase in LNG liquefaction and regasification capacity may lead to more liquidity in the global gas market. This would increase resiliency in supply and demand for individual countries and could reduce interdependencies. It could also limit the impact of potential interferences in the gas chain, thereby increasing trust from public and politicians in the proper functioning of the gas market and enhancing the reputation of natural gas as a reliable energy source. The reduction of risks in the gas chain will also lower financing costs.

One of the main features of natural gas market is that government control is quite intensive. As a result of advanced technology and high investment costs, the situation makes states be active on every stage of natural gas value chain causing natural gas to be more political fuel than crude oil. Possibility of geopolitical terms to become prominent on natural gas agreements increases as a dependent of statist tendency on natural gas sector. It sets off using of natural gas as a weapon in Russia, the biggest gas exporter in the world, where there is a stage monopoly on natural gas agreements. *'The source*

nationalism' is a common tendency in supply countries and natural gas trade is a matter of international agreements. Especially, geopolitical competition is seen as more powerful on aforementioned pipeline's projects; andeffects passage and transfer countries as weel as supply and demand countries. The situation, in which direction of pipelines create long term addictional relations among parties, will follow witnesses of global power struggle mostly by getting beyond regional limits. The situation which has directed the sources of Middle East and Caspian on the landlocked position during cold war will be globalized by following witnesses as vitan competition. East and West Corridor which made Russia and Iran by-pass as a result of cooperation between USA-Turkey has opened way to competition between global power USA and regional powers Russia and Iran. Turkey undertakes the position as a corridor country for natural gas transfer of Caspian oil, because Southern Gas Corridor was opened as a part of teh East-West Corridor's naturaş gas step. Geopolitics as well as geoeconomics made Turkey prefer TAP and TANAP, instead of Nabucco, which was the most powerful candidare among other alternative projects developed for opening a real Southern Gas Corridor.

The situation that rate of reserve production is better than oil. Besides the development in shale gas technology means that production and consumption projection of natural gas will be in the direction of rise. At the same time, an enlargement on the fields of natural gas usage is expected. As structural conservation is a relying matter on LNG and shale gas reform for natural gas market, maintaining importance of political term, which is originating from that of natural gas market, has more strict structure than expected tahn oil market.

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THE OIL AND GAS POLICY: HOW/WHY THE MARKET-STRUCTURE INFLUENCES THEIR POLITICIZATION

Azime Telli •

Özet

Uluslararası ilişkiler ve enerji eğilimleri temelden birbirine bağlı olduğu için enerji güvenliği, devletlerin hem iç hem de dış politikalarının ayrılmaz bir parçasıdır. Dünya Enerji Ajansı'na göre, fosil yakıtlar – ham petrol, doğal gaz ve kömür- 2013 yılında dünya birincil enerji tüketiminin % 85'ini karşılamıştır. Öte yandan, bu çalışmada sadece ham petrol ve doğal gaz politikaları kıyaslanacak olup sahip olduğu yaygın kullanım alanı ve küresel ekonomi açısından taşıdığı kritik öneme rağmen jeopolitik etkisi daha zayıf olan kömür değerlendirme dışında tutulacaktır. Doğal gaz, değeri yükselerek artan bir enerji kaynağı haline gelmiş durumdadır. Bu nedenle, bu çalışmada, "*doğal gaz neden petrolden daha politik bir yakıttır?*" sorusuna yanıt aranacaktır.

Anahtar kelimeler: Petrol, doğal gaz, enerji güvenliği, boru hatları, LNG.

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