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# Brief

## **The European Gas Markets: New Dynamics in a Rapidly Evolving International Context**

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### **Abstract**

#### **FEEM Workshop Brief**

Since 2010, FEEM organises an annual closed-door brainstorming workshop gathering leading international experts from the academia, international organizations and the industry, to discuss mid- to long-term challenges and opportunities for European gas markets. In their 2017 edition, FEEM 'Gas Talks' focused on five issues: i) The impact of Trump on international and European gas markets; ii) The future of European gas demand and competitiveness in light of renewable and energy efficiency trends; iii) Russia's evolving gas export strategy, between Nord Stream 2 and Turk Stream; iv) Changing dynamic in global LNG markets; v) Latest supply developments in the Mediterranean, from Algeria to the Levant Basin. This Workshop Brief provides a reflected summary of these discussions, with the aim of contributing to the current scholarly and policy debates on the future of international and European gas markets.

# 01

## The impact of Trump on international and European gas markets

Between 2005 and 2015, the US reduced their GHG emissions by more than 10 percent. This trend was mainly due to the major switch from coal to gas that followed to the shale gas revolution. That is, the US are already decarbonising, and as a result of energy market trends rather than of climate policy.

By pulling the US out of the Paris Agreement, President Trump has shown to have not taken this market reality into consideration, basing his decision on purely domestic political reasons. So, Trump's wished renaissance of 'beautiful, clean, coal' is very unlikely to materialize, as gas did not outpace coal due to environmental regulations or climate policy, but to economic competitiveness. On this basis, gas is set to expand its role in the US energy mix, alongside growing variable renewables. Rolling back Obama's Clean Power Plan by removing methane emission regulations, removing fracking rules, lifting the moratorium on coal, or scrapping GHG consideration from permit reviews, will not be sufficient to reverse the unavoidable decline of coal.

In terms of exports, Trump is expected to push for greater American LNG exports, as a way to provide substance to both his 'America First' economic strategy and to his 'American Energy Dominance' strategy. Given the

President's transactional character, US LNG exports are likely to be promoted all over the world, and without any specific foreign policy consideration. Reducing the US's trade deficit with other nations and expanding the economy is, indeed, what matter the most to Trump. In this context, it does not really matter whether LNG is exported to Asian or European markets; what matters are revenue flows. But also in this case, it is not politics which will decide if, how much, and where to the US will export LNG, but market considerations and more precisely price spread between US, European and Asian markets.

Given the pivotal role played by the US in the Middle East, 'typhoon Trump' could not avoid hitting also the equilibria of this region. Trump supported Saudi Arabia and other Arab nations in their move to isolate Qatar for allegedly supporting terrorism and being too close to Iran. This occurred despite being Qatar a long-time US ally, and also the host of the main US military base for operations in the Middle East. So far, the crisis has had no consequences on Qatari LNG exports. However, this situation has casted doubts about the reliability of the country as solid gas supplier, particularly in those Asian countries where Qatar represents the first supplier.

# 02

## The future of European gas demand and competitiveness in light of renewable and energy efficiency trends

The European energy market is rapidly transforming. On the basis of strong decarbonisation policies and rapid technological advancements, variable renewables have strongly expanded in the energy mix. This trend mainly happened at the expenses of gas, and not of much-polluting coal. In fact, the strong fall in international coal prices followed to the US shale gas revolution made the fuel very competitive in European power generation. So, gas found itself sandwiched between cheap coal on the one side, and subsidized renewables on the other side. This led to a strong fall in gas demand from 498 Bcm in 2010 to 399 Bcm in 2015, while coal consumption fluctuated over the same period between 280 and 260 Mtoe. How could such a paradoxical trend happen?

In Europe, coal is competitive vis-à-vis gas because negative externalities (e.g. GHG emissions) are still not internalised in its price. Europe has failed to deliver an effective carbon market, able to solve such distortions and to provide the right investment signals to the market. Putting the right price to carbon thus represents the crucial element to ensure a development of European energy markets consistent with the sustainability, competitiveness, security energy policy paradigm.

On their side, European gas companies failed to clarify to both policy makers and the public opinion the potential role of gas as a transition fuel. Simplified narratives looking at fossil fuels as a unique category, failing to recognize the different GHG emissions of different fuels, were not sufficiently addressed. This was also due to a fragmentation within the gas industry itself: producers and exporters wanted to sell large quantities with long term contracts; network operators wanted to prolong life of their asset and avoid them becoming stranded; suppliers and traders often sell both gas and power, so they could divest from gas and reposition themselves in electricity.

Meanwhile, European gas companies failed to provide new solutions to decarbonise gas. Investments in carbon capture and storage (CCS) did not materialize, often on the basis of the assumption that governments or European institutions should provide the funding for research in the area. In reality, being CCS a sort of long-term 'insurance' for gas companies in a decarbonizing world, gas companies should be the ones moving on this.

Although late, the 2016 launch of the Oil and Gas Climate Initiative by ten of the world's largest companies represented an important step for the creation of a joint industrial effort

for the development of CCS. However, with an annual joint investment pledge of \$100m over the next 10 years (e.g. 0.1 percent of the companies' yearly capital expenditure), this initiative seems to lack ambition. Should the industry want to secure the role of gas in the

European energy mix of the future, it should not only call for higher carbon price (which would eventually materialize, with time) but act itself, primarily by scaling-up its effort for the development of CCS.

## 03 **Russia's evolving gas export strategy, between Nord Stream 2 and Turk Stream**

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In Russia, Gazprom is losing domestic market share to independent gas producers, but it remains predominant in the export market.

As far as pricing policy is concerned, Gazprom realizes the fundamental shift in the European gas pricing mechanism towards hybrid pricing. Despite Gazprom's rhetoric in favor of traditional oil indexation, numerous adjustments and contract reviews have already been made over the last years. Between 2009 and 2015, nearly all Gazprom's contracts were reviewed, providing price discounts (25 percent on average), easing of take-or-pay obligations and a certain introduction of a spot component.

As far as export routes are concerned, Russia has an official target of dramatically reducing volumes of gas transit through Ukraine by 2020. Nevertheless, Ukraine continues to remain today the primary transit route of Russian gas to Europe. Ironically, in 2016 Gazprom even increased the utilization of the Ukrainian network, being in that moment its

transit tariff cheaper than Nord Stream's.

Russia is trying to generate as many pipeline options as possible (e.g. Nord Stream 2, TurkStream), hoping that at least some of them would work. This, apparently random, strategy is based on the acknowledgement that all new pipeline projects face huge political challenges in Europe. So, Russia's idea is to advance all of them at the same time, and then see which one might finally go ahead for real.

A trade-off clearly exists between the proposed projects. Should the OPAL issue be finally settled, or should Nord Stream 2 be constructed, there would clearly not be the need for a full-fledged TurkStream. In this case, only the first line of TurkStream would be constructed, just to supply the Turkish domestic market. On the contrary, should Nord Stream 2 be blocked by the European Commission, Gazprom would most likely try to advance TurkStream in its full-scale version.

Over the last ten years, the EU-Russia gas relations have experienced a radical U-turn. The times of Nord Stream being progressed under the EU flag seem to come from another era. The Russia-Ukraine-Europe gas crises of 2006 and 2009, and the 2015 Ukraine crisis seriously compromised the relationship. The persistently negative European perception about Russian gas, is still informed by the over-dependency that Europe factually had on Russia at the time. However, circumstances have changed in the meantime, both at European and Russian levels.

The European gas market has become increasingly liberalised and integrated, also thank to a strong antitrust legislation that now effectively addresses any eventual abuse of market position.

The Russian strategy also changed a lot. Today, Russia's priority is to maintain its share in the European gas market, nothing more than that. To do so, Russia has even switched from a price-over volume export strategy to a volume-over-price strategy. Russia knows that Europe will always remain its key gas export market, as it also experienced how difficult it is to diversify towards China. Furthermore, many 'Russias' are actually at play today; being Gazprom increasingly challenged by the independents, a more plural scenario is slowly emerging. This should, at the end, favour both the Russian consumers and Europe, as more competition might bring more efficiency and security.

## 04 **Changing dynamics in global LNG markets**

Currently, the most interesting developments in LNG markets are taking place in the US and in Asia. Both supply and demand of LNG are growing, the former mostly in the US and in Australia and the latter mostly in China and India. If over the last years a global LNG glut was expected, this did so far not materialize as a result of two factors: i) strong demand growth in China, India, Pakistan, Egypt and Jordan; ii) the growth in export capacity which started in 2013 is yet to be transformed into real export growth, due to various delays in Australia, Angola, Algeria and the war in Yemen. Most of the new supply from these countries should hit the markets in 2018-2019. By 2020, a glut

might then still happen, although – once again – this will depend on both demand and supply trends.

After the Fukushima accident, European LNG imports have halved from 2010 to 2014: while LNG was diverted to high-priced Asian markets, pipeline gas filled-in the gap. Similarly, flexibility in pipeline contracts allowed more LNG to reach Europe when there were no other markets for it. This illustrates how Europe has often played the role of a shock absorber in the global LNG market. This resulted in significant variations to Europe's LNG imports, which were manageable due to Europe's: i) vast, and

largely underutilized, regasification capacity; ii) availability of alternative pipeline supplies, with flexibility embedded in the long-term contracts; iii) liquid trading hubs. Should this role of global shock absorber further scale-up in the future, it is possible to expect pipeline suppliers – and notably Russia – to respond in order to preserve their market shares.

But LNG terminals do not have to be full in order to make a service to Europe. In fact, underutilized LNG terminals also represent a potentially important element in the European gas supply architecture due to their optionality. That is, instead of doing everything to reduce gas supplies from key suppliers (e.g. Russia), Europe's gas supply security could more effectively be safeguarded by ensuring that unused alternatives (e.g. LNG terminals) are maintained so that they can be tapped into for an indefinite period in case of supply disruption

from a key supplier. This optionality would require the establishment of a capacity market in order to allocate the necessary capacity payments in an efficient way. Such a system would certainly have a cost for the consumers, which could well be defined as a premium for gas supply security. In aggregate terms, this system might well be economically efficient, as the security premium could easily be recovered by importing larger amounts of cheap gas from the most competitive suppliers. To make a long story short: Europe should not be afraid of relying on one or two major gas suppliers, as far as it has workable options open to supply its market in case something goes wrong with the key supplier(s). LNG could represent a key option in this regard.

## 05 Latest supply developments in the Mediterranean, from Algeria to the Levant Basin

For Algeria, gas represents a vital sector of the economy, accounting for about 20 percent of budget revenues and 40 percent of export earnings. The country owns the tenth largest proved gas reserves in the world (4.5 trillion cubic meters). These reserves might increase still further in the future, considering that Algeria owns the fourth largest technically recoverable shale gas resources (~22 trillion cubic meters) in the world. Notwithstanding this huge endowment, the recent evolution of Algeria's gas export performance has been

meagre. After a boom during the 1990s, the country's gas production has basically stagnated since 2000. Meanwhile, the country's gas consumption has progressively grown over the last decades. Consequently, exports substantially declined over the last years, from 65 Bcm in 2005 to 45 Bcm in 2015. The reason of this decline is not due to lack of resources, but to strongly increasing domestic demand, oil price indexation policy that made Algerian gas more expensive compared to its competitors, and poor

governance. Just to provide an example on this last point, Sonatrach has changed 6 CEOs over the last 7 years, creating an unstable environment that did not favour decision making and the attraction of international investments. In 2016 gas exports have increased by 20 percent to 53 Bcm, which was also due to favourable Algerian gas pricing in low oil price environment. Moreover, Sonatrach has recently announced an investment plan of US\$ 70 billion between 2017 and 2021 to revamp exploration and production activities. In this context, Algeria expects to grow its gas export capability beyond 80 Bcm by 2025. The actual level of Algeria's gas export is, however, largely dependent on the evolution of European gas demand, and on the country's capacity of putting in place a stable and efficient governance of the gas sector.

After 2010, the Eastern Mediterranean region has become a hotspot of international energy discussions following a series of large-scale gas discoveries in the offshore of Israel, Cyprus and Egypt. To exploit this gas potential, a number of export options have progressively been discussed, alongside new regional cooperation scenarios. Hopes have, indeed, been expressed about the potential role of new gas discoveries in strengthening not only the regional energy cooperation, but also the overall regional economic and political stability. However, initial expectations largely declined over time, particularly due to continuous investment decision delays in Israel, and the downward revision of gas resources in Cyprus. These developments even raised scepticism about the idea of the Eastern Mediterranean becoming a gas-exporting region. But, all of a sudden, initial expectations were revived in 2015, after the discovery of the large Zohr gas field

in offshore Egypt - the largest gas field ever discovered in the Mediterranean. Considering its size, this discovery has reshaped the regional gas outlook and has also raised new regional cooperation prospects. The proximity of Zohr with Leviathan and Aphrodite could indeed allow a coordinated development of the fields, and thus allow the creation of the economies of scale needed to put in place a competitive regional gas export infrastructure. Egypt already has in place a 19 Bcm/year LNG export infrastructure that currently sits idle. This would allow to export any volumes from Zohr and other fields not used in the domestic market. Given the growing domestic demand in Egypt, it is fair to assume that some export capacity would be left for Israeli and Cypriot gas – if it could be brought to the Egyptian terminals. As Egypt's LNG plants can also be expanded, Israeli and Cypriot developers would have a flexible outlet. Utilizing the existing Egyptian LNG infrastructure for the export of Eastern Mediterranean gas would have a major added value: flexibility. In a geopolitically-volatile region as the Eastern Mediterranean, committing to new costly and long-term energy infrastructure might prove to be difficult for international energy companies. On the contrary, connecting offshore gas fields to the existing LNG infrastructure in Egypt might represent an efficient and viable solution for the monetisation of regional resources. A joint regional export scheme via Egypt's LNG facilities could also provide a first opportunity to test gas cooperation between Egypt, Israel and Cyprus. A cooperation that could eventually scale-up during the 2020s, should new gas resources be found in the region and should gas demand in export markets justify the construction of additional infrastructure, like a Israel-Cyprus-Greece pipeline.

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